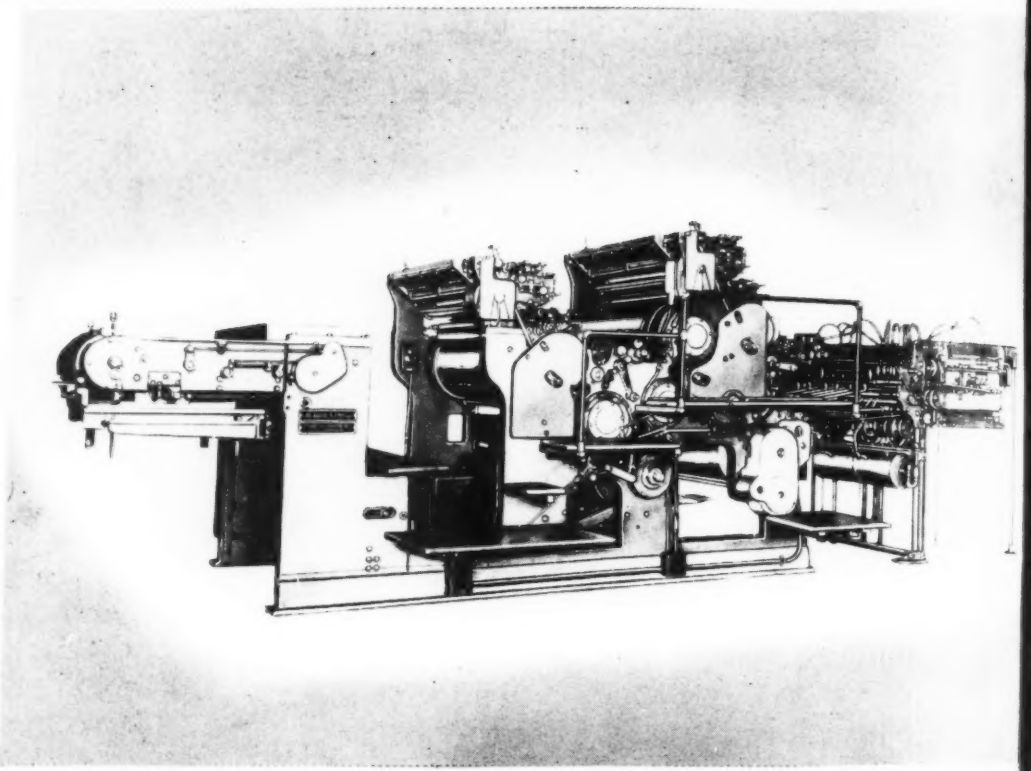
The Photo Lithographer

No. 6

HOW HOE DAMPENS THE PLATE



On the Hoe Super-Offset Press there are three controls of the water supply. Each can be operated while the press is running. That's how the lithographer can make slight changes — be sure of moisture evenness — improve the quality of his presswork.

The fountain on the Hoe Super-Offset Press is a heavy casting made from a special rust-free, acid-resisting metal. Unlike the more conventional light-weight fountain it never requires replacement. It can't be damaged. It cannot spring a leak. Its great strength helps preserve perfect alignment with the plate cylinder. As a strong supporting cross-member for the frame it adds to the rigidity of the press.

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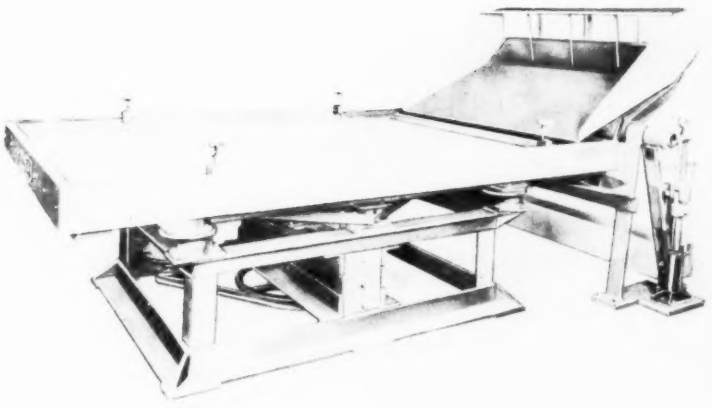

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THE PHOTO-LITHOGRAPHER

Published in the Interests of Lithographers to Increase Sales, Efficiency and Quality

WALTER E. SODERSTROM
PUBLISHER AND EDITOR

SAMUEL D. WOLFF
ADVERTISING MANAGER

Volume V DECEMBER, 1937 *Number* 12

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(Right)

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(Left)

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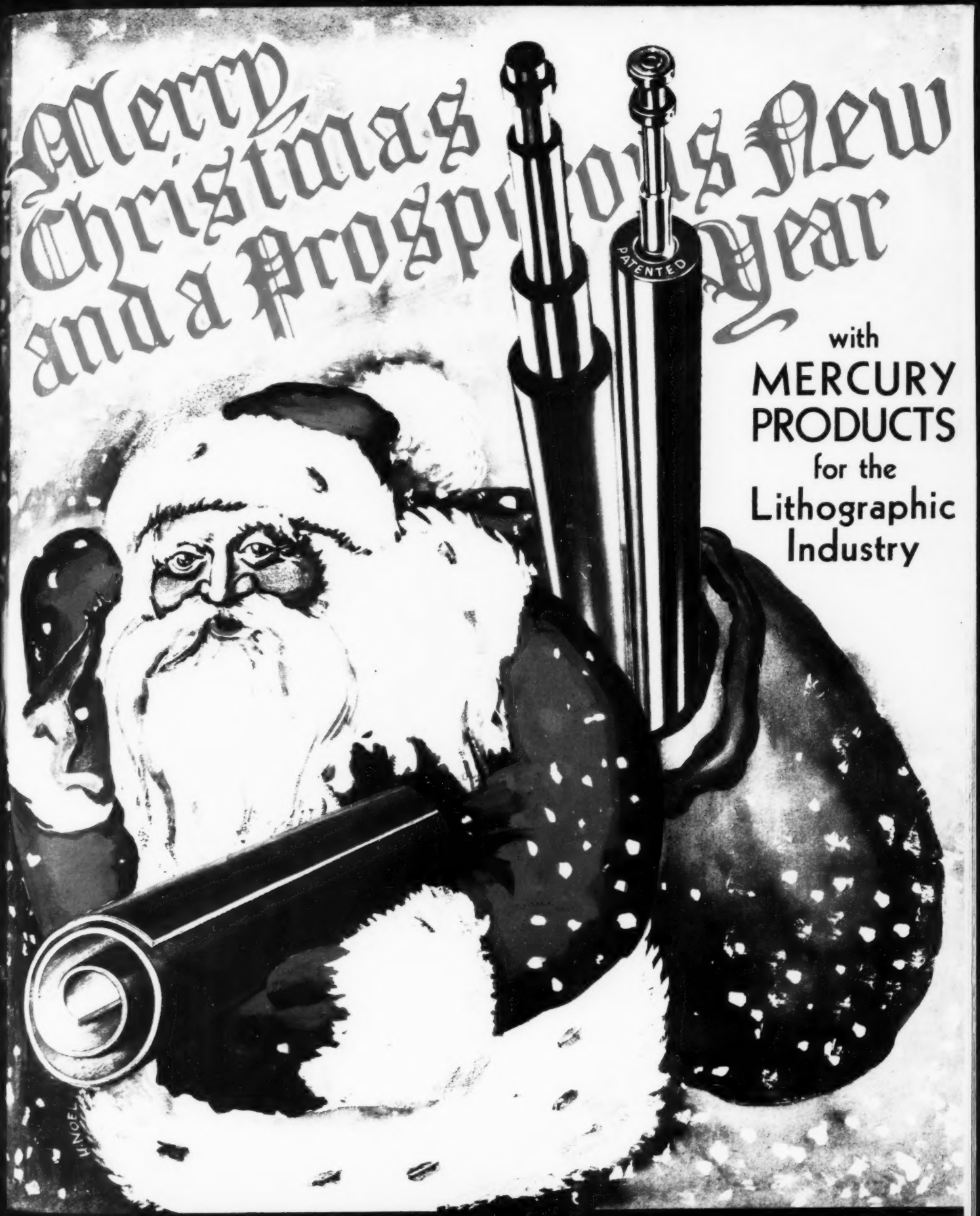

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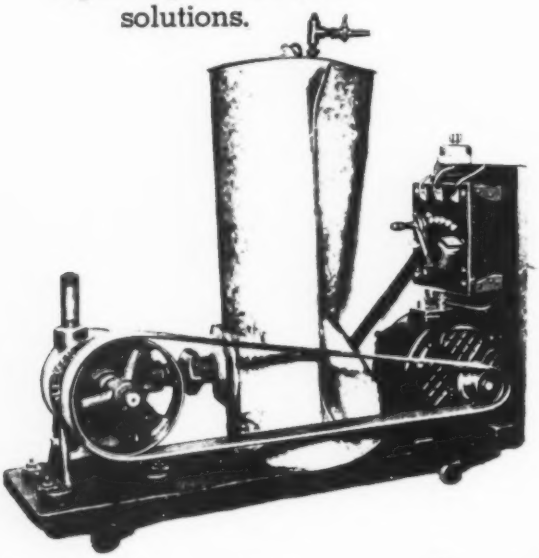

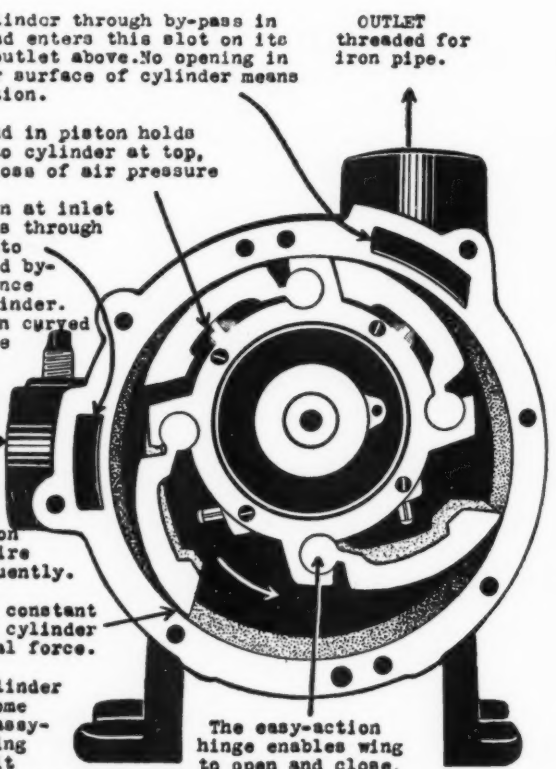
Air from cylinder through by-pass in cylinder head enters this slot on its way to the outlet above. No opening in curved inner surface of cylinder means quiet operation.
OUTLET threaded for iron pipe.
Enclosed stud in piston holds wing close to cylinder at top, preventing loss of air pressure or vacuum.
Air coming in at inlet at side comes through this slot into cylinder head by-pass and thence into the cylinder. No opening in curved inner surface of cylinder means quiet operation.
INLET threaded for standard iron pipe.
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Wing kept in constant contact with cylinder by centrifugal force.
Wing and cylinder surface become hard and glassy-like, insuring a perfect fit and positive pressure or vacuum.
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- The ability of the Model "Double-O" Cleveland to fold 98% of this Direct Mail Literature, is conclusive evidence that the "Double-O" is the most practical and profitable folder for printers and binders doing this class of work.
- The "Double-O" folds sheets 4 x 5" to 22 x 28" at highest speeds in a great variety of folds.

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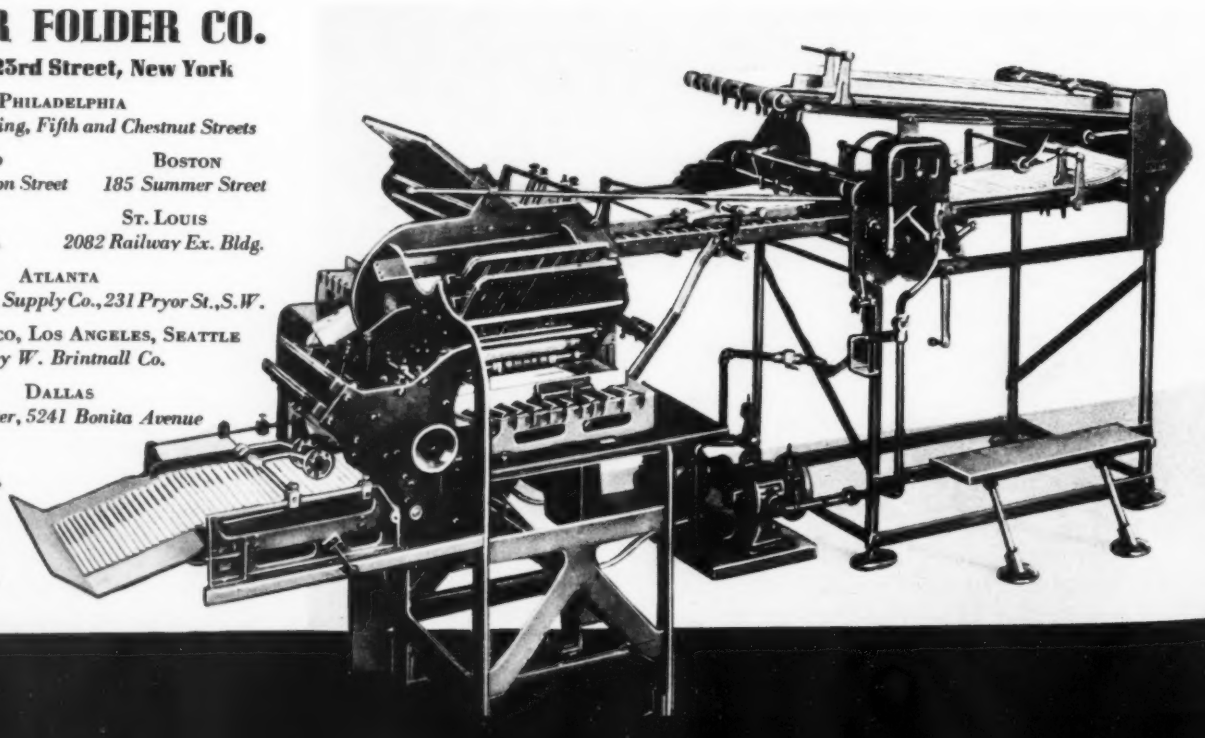


THE CLEVELAND
Model "Double-O" Folder with continuous feeder. Powered by Kimble.

THE PHOTO-LITHOGRAPHER

Published in the Interests of Lithographers to Increase Sales, Efficiency and Quality

Volume V DECEMBER, 1937 *Number 12*

SELF-PRESERVATION

IN a search for the reason why some individuals and companies do not participate in or support Association activities, quite often it is found that an entirely selfish attitude is taken with respect to the benefits to be derived from membership.

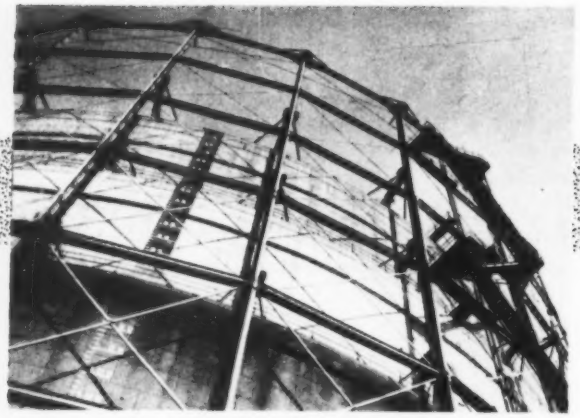
Associations do not exist to promote the business of the individual or company, except as they may function to improve the welfare of the entire industry of which the individual is a part. When these so-called independents are approached for membership, the answer very often has been, "I cannot see where the Association will benefit my business."

These independents who do not join with the majority in Association work forget that the forces which are working against their best interests are not those who are engaged in the same business, but they are entirely alien influences. These forces cannot be opposed by individuals or even large companies; they must be fought through the united action of the industry functioning through an Association.

An easy way to evaluate Association activity is to answer the following questions: Can an individual or company afford the expense to present an effective case in legislative hearings? Is it possible for an individual to gain recognition in the establishment of standards and specifications? How may an individual effectively fight a nation-wide battle for markets in the face of competition from foreign lands? These questions illustrate just a few of the problems that are faced by every business which can only be met through strong Association representation.

No individual is as big as the industry of which he is a part, and in this day of almost universal organization of every phase of our lives, it is more urgent than ever that the individual support the Association which is working for the best interests of the industry as a whole—even if it be for no other reason than self-preservation.

Join your association, and support it financially and with your services. Too often the association member assumes that his obligation ends with the payment of dues. Regular payment of dues is commendable, but very often support in conducting the affairs of the association is of even more importance than the relatively small sums paid for membership. Those who have served their association gain in dividends of experience much more than they lose in time taken from their business. If your Association has done an effective job in solving your problems, write to the officials and tell them about it. Remember they serve thousands of members who may be aptly termed the "boss," and they like to receive commendation for a job well done as well as the "kicks."



An Angle Shot by the Author

The Value of RETOUCHING PRINTS for Photo Offset

By EDWARD C. STERRY

THE camera never lies, but it can be made to play a lot of tricks. This is as true today as it was in 1802 when Sir Humphrey Davy and Thomas Wedgewood made shadow pictures by placing a leaf on a piece of sensitized paper and exposing it to the light. But it was not until 1839 that Sir John Herschel suggested that hypo, a substance which he had discovered in 1819, could be used to make the image on the sensitized paper permanent by removing the light-sensitive nitrate of silver that had not been blackened by the exposure. So hypo, from that day to the present, has given us a long period of faithful service.

And so it is with the camera itself. From the pinhole type to the most ultra modern precision camera of the moment—the lens has told the truth. Photographs have always been accepted as indisputable evidence in law, and photographic records have been made for permanent keeping, all because the camera does not lie.

Trick photographs, double exposures, sur-printing; and photographs (the original subject of which have perhaps never existed), are not the product of the camera alone, but rather the result of man's ingenious mind. Perhaps the camera itself is a little *too* faithful in its rendition of light and shadow. It is this faithfulness in the reproduction of detail that has led to the necessity for retouching. There are certain limitations in photographic lighting—limitations which often hamper the desired effect. To compensate for this inefficiency retouching is resorted to.

Almost any photograph can be improved by retouching by an artist who knows *how* to retouch. There are three major reasons for retouching a photograph for reproduction. First, to remove any undesirable objects or background from the picture in order to improve the composition. Secondly, to raise the tone of the highlights or deepen the shadows in order to make a more contrasty reproduction, which, in photo-offset is quite desirable. And third, to improve the appearance of certain portions of the photograph, which in the case of saleable merchandise would have a direct influence on the prospect.

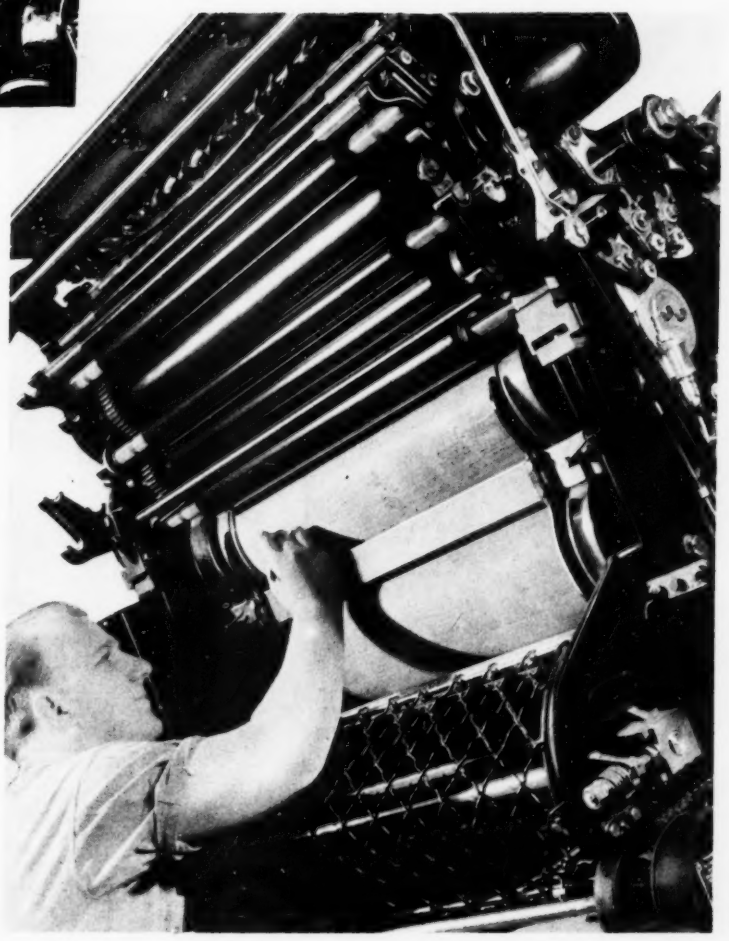
However, it is a mistaken idea to believe that any old photograph can be reproduced satisfactorily through retouching. In shooting any subject for the purpose of reproduction the question of composition, lighting and exposure should receive the same consideration as if the shot were made for a salon entry. By so doing the matter of retouching is reduced to minimum. If the photograph is right to start with the right results are more easily and quickly attained.

Inasmuch as most photographs can be improved by retouching the question arises as to whether the small or medium sized plant should offer the facilities of retouching to its customers. My answer is yes, for two reasons. First, reproductions done from a retouched photograph are far superior to those made from unretouched work. And secondly, a well retouched photograph will cut down the time on the camera. It is not at all uncommon for a cameraman to make two or three shots for a halftone before obtaining a satisfactory one. And *then* the results are not always pleasing because it is not always possible to bring the tonal values into a harmonious relationship. The negative can be no better than the photograph itself. (The matter of dot-etching and local reduction is not considered here, as this article is primarily for the planographer who has not yet dabbled in dot etching, continuous tone positives and deep etch plates.) However, good retouched photos are just as essential to good reproductions whether the plates are albumen or deep etch. In a good retouched photo the tonal values are corrected before it reaches the camera. The necessary artistry to make a good reproduction is not left to the mechanical limitations of arc lights, lenses, emulsion and developers.

In the course of time a great variety of photographs pass through the offset department. In most cases the customer insists on their reproduction regardless of the protests and advice of the salesman and the gallery man. The house that is able to offer retouching facilities makes a better friend of the customer because of the superior results produced. And in cases where a large volume of

Original photograph made by Herbert Appleton, professional photographer. Certain halation and rough appearance of metal parts plus some unequal balance of lighting were practically impossible to avoid.

Retouching done for three reasons: to eliminate unnecessary background, clean up the metal parts, and to blend highlights and shadows into a more pleasing appearance. Retouched by Howard Nareau, with Wm. J. Keller, Inc., Buffalo, N. Y., through whose courtesy this subject is shown.



halftone work is being done, the time saving element becomes a deciding factor. It cannot be argued that a well retouched photo does not save time in the dark-room. It definitely *does* save time and material.

A retouching service should be offered by every photo-offset lithographer handling halftones even in a small way. If it is not feasible to do the work in the plant, then tie up with a good retoucher. Such a service will build up the quality of your work, and if done within the plant will provide another source of revenue.

In selecting the equipment do not be satisfied with a cheap air brush. An inferior instrument will not give fine results. And, besides, a poor brush will tire the patience of a good artist and cause his own hand to become inefficient. By all means offer a retouching service to your clientele in one way or another. It is one sure way to raise the quality of your work, cut your camera costs, and naturally add to your profit.

Less Dirt, More Light Will Eliminate Many Dark-Room Troubles

By I. THORNER

Agfa Ansco Corporation, New York

IN the many years of my experiences in various parts of the country, calling on the photo-lithographic trade, I have found that the most important place in photo-lithographic establishments is often the most neglected one.

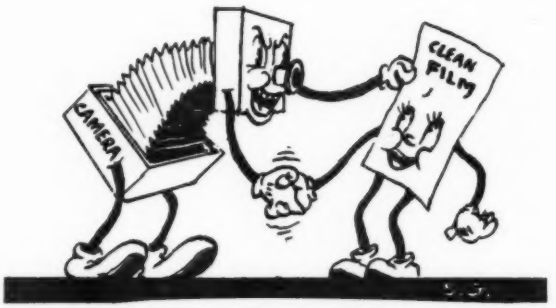
I refer to the dark-room. While many photo-lithographic organizations are willing to spend any amount of money for developing processes, plate making equipment, and for the purchase of very elaborate cameras, they are frequently negligent in arranging and equipping their dark-rooms in the proper manner.

In order not to bother you with a lot of detail I am going to draw your attention only to the most vital points pertaining to the common procedure in a photographic dark-room.

When a job comes in it starts in the camera room. There the negative is made and developed. Every one knows that much depends upon the quality of a negative to eliminate trouble and unnecessary work in subsequent steps. Does it not appear, therefore, to be commonsense to put this so-called dark-room in such condition that it will work to best advantage and will turn out proper negatives?

First of all, cleanliness is imperative! Is your dark-room clean?

Secondly, most dark-rooms are so dark that nothing can be seen in them. Every dark-room should not only be kept clean, but also should be painted in a bright and cheerful color and should be equipped with the proper type of illumination, corresponding to the type of material in use. In many cases I have found the walls of such rooms painted black. This is a very old-fashioned procedure involving only handicaps instead of furthering advantages. As long as the lamp is equipped with the proper filter, only safe light can be reflected which, in the event of cream colored or tiled walls, will do much toward a far superior general illumination of these working quarters.



LIKE OLD FRIENDS

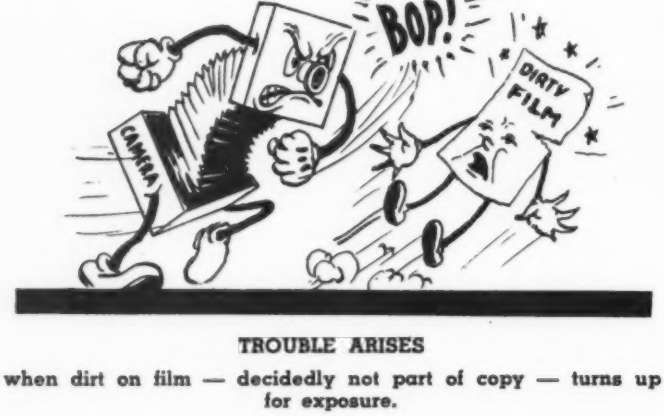
they cooperate to produce a good job when the film is kept clean in a neat and cheerful dark-room.

Besides black painted walls, I have found the floors dirty, covered with film and paper waste, as well as bottles of chemicals arranged all over tables and shelves, with dried chemicals covering the outside of containers, caused by spilling. In such shops I have found the operators usually complaining about the material being subject to spots, streaks, and all the "what-nots" that keep a manufacturer's helping hand very busy. All such troubles were due only to the improperly kept surroundings in which the film was handled.

The manufacturer of film takes the greatest precautions in the making of such material. Cleanliness predominates in every step until the film comes into the user's dark-room. There, being unwrapped, it is handled on a table where a developer may have been mixed only a day ago, with some of it spilt over the table and allowed to dry. When developer dries on any surface only the water evaporates and the chemicals remain solid. Thus, if spilt on a table, it causes spots and streaks.

It would be very good practice to mix all chemicals anywhere but in the dark-room. If they must be mixed there, a sheet of paper or a linoleum cloth on the table, which is either replaced or cleaned daily, will do wonders toward the elimination of many troubles.

(*Continued on page 55*)



TROUBLE ARISES

when dirt on film — decidedly not part of copy — turns up for exposure.

New Developments in Chemicals for The Photo-Lithographic Process

By WILLIAM H. WOOD

Research Laboratories, Harris-Seybold-Potter Co., Cleveland, O.

THE RESEARCH Laboratory of the Harris-Seybold-Potter Co. has set up as its two fundamental aims—the development and standardization of new processes and new chemicals for offset lithography, and the improvement of older processes, methods, and chemicals. It is hoped that through the work of this laboratory the craftsman in lithography will have better tools with which to work and that lithography will find application in fields in which it is not now used, thus expanding the opportunities for craftsmen as well as shop owners.

In the year and a half this laboratory has been in existence over a dozen new products have been developed for both photo-lithographic plate making and plate printing. A synthetic colloid to replace albumen has been produced. This material is characterized by its uniformity from batch to batch, a result of rigid chemical control during its production from the raw materials, acetylene gas, and acetic acid. It is non-spoiling over long periods of time when kept at room temperatures. When sensitized by ammonium dichromate, it has high printing speed and the dots under a halftone negative are true to size. There is no increase in dot size as with albumen, and the metal between the dots is absolutely clean. This, of course, results in a brilliance of print heretofore obtained only from the deep etch process.

Moreover, a smaller quantity of material is used to cover a plate than is required when using albumen. Baking converts the image to a tough, resistant resinous material and runs of over 100,000 impressions have already been obtained. Plates exposed in a photo composing machine over a period of an hour and a quarter during which thirty-two exposures were made, showed absolutely no difference between the quality of the first and last exposures.

No plate coating material will adhere satisfactorily to a dirty metal plate, hence the operation of counter etching. We have found a counter etch which is apparently superior to any of those commonly used. It definitely increases the adhesion of colloid coatings such as the Harris synthetic colloid, and egg albumen. Any foreign matter is removed and metal oxides are converted to metal but the grain is scarcely affected. This counter etch is equally effective on either zinc or aluminum.

In conjunction with one of the major chemical companies of the United States, we have secured an ammonium dichromate which gives clear solutions even though these are allowed to stand for weeks. The product is crystalline and of highest quality. Coatings prepared with this dichromate have good light sensitivity and are free from the usual photo dichromate impurities.

For use as a general ink solvent, this laboratory has developed a material which seems to have improved solvent properties when compared with gasoline, turpentine, and similar materials. It does not contain pine oil or rosin products and will not irritate the skin.

Realizing that ammonium hydroxide and sodium bicarbonate solutions were likely to cause weakening of the image substance when used to clean up the non-printing portions of albumen plates, we have developed a mild clean-up solution which is even more effective than the common clean-up agents, and is also quite good for removing the usual deep etch resist. Used in low concentration, it cannot harm the plate in any way.

Just as the entire process of lithographic plate making is chemical, so is the process of lithographic plate printing. We have realized for some time that a reduction in the water required during printing should eliminate many press troubles. Colored inks would show greater intensity on the finished sheet, less ink would be required, ink emulsification would be largely prevented, and roller stripping would probably be eliminated. Through considerable research and testing we were able to find a combination of two chemicals, previously laboratory curiosities, which would function as very efficient plate etch and fountain solutions. The finished printing plate is treated with one solution which is dried down like a coating of gum would be. Then from one-fourth to one ounce of a

(*Continued on page 63*)

Stull Harris, Wm. H. Wood and Anthony Capello

140 NOW ATTENDING

ONE hundred and forty lithographic employees are now enrolled in the nine courses being conducted by the Lithographic Department of the New York Trade School. They report for classes on Monday, Wednesday, and Friday evenings, and Saturday mornings.

The Lithographic Department of the New York Trade School owes its existence to a cooperative agreement recently made by the directors of the Lithographic Technical Foundation, Inc., with the trustees of the New York Trade School; and to the generosity of numerous manufacturers of equipment and materials whose names appear opposite.

An advisory committee, consisting of three lithographic executives and three union officials with the educational director of the Lithographic Technical Foundation as chairman, determines courses to be offered, recommends candidates for the instructional staff and advises respecting the eligibility of applicants.

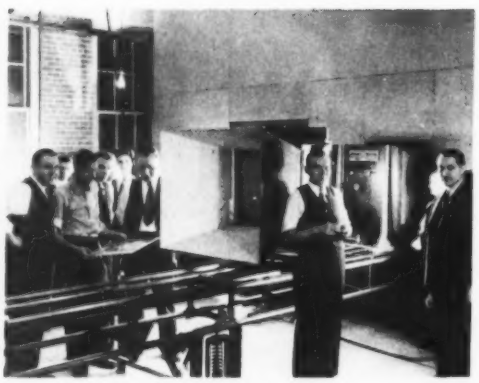
At present, courses are offered principally for two types of lithographic employees, namely, apprentices and men in obsolescent departments. The courses cover practically all phases of lithographic technique, and the instructors are practical men who have made names for themselves as experts in their particular branch of lithographic procedure.

Courses for lithographic executives and journeymen have also been planned and will be offered at the school as soon as practicable.

The aim of those in charge of the Lithographic Department is to make it second to none in the country, both in the completeness of its courses of instruction, in the quality of its teaching staff, and in equipment that will represent the latest developments in the industry.

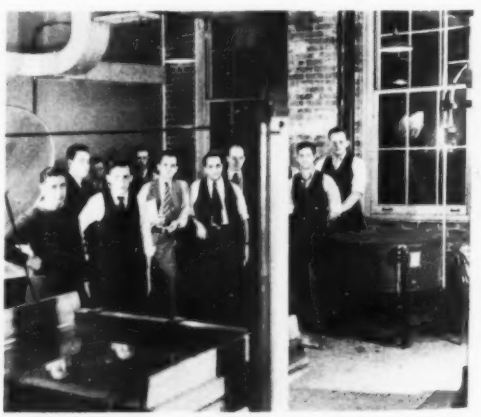
View of Lithographic Department in the New York Trade School Taken Near Entrance.

Group of Friday Evening Students: About One-fourth Entire Student Body, with Four Instructors; also George McLaughlin, Superintendent, and Dr. D. J. MacDonald.



A Few of the Camera Students with Instructor, George Walz. Cameras Loaned by Repro-Art Machinery Company and Rutherford Machinery Company; Lamps by Macbeth Arc Lamp Company and Joseph Gelb Company.

Photo-composing Class with Instructor, Joseph Mazzaferri. Courtesy of Rutherford Machinery Co.



Some Plate Making Students with Instructor, Joseph Mazzaferri. Equipment Loaned by Rutherford Machinery Co. and Eastern Lithographers' Assoc.

LITHOGRAPHIC SCHOOL

Complete List of Contributors

AGFA ANSCO CORPORATION
ALUMINUM COMPANY OF AMERICA
ARVEY CORPORATION
PHILIP M. BAINBRIDGE
BAUSCH & LOMB COMPANY
CLARKE & COMPANY
G. CRAMER DRY PLATE CO.
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UNITED STATES PRINTING & LITHO. COMPANY
S. D. WARREN COMPANY
WEST VIRGINIA PULP & PAPER COMPANY
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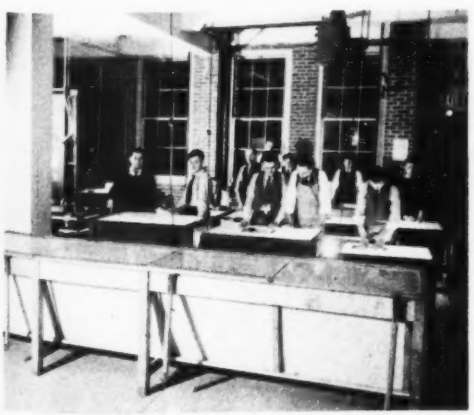
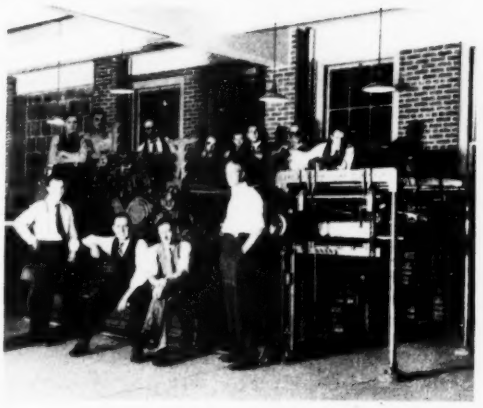


Members of the Stripping Class. Equipment loaned by the United States Printing & Litho. Co. and Local No. 1.

Members of One of the Three Color-Correcting Classes and Instructor, James Castellano. Other Instructor, Frank Schaeffer.



Group of Offset Press Students with Instructor, Frank Demarest. Press loaned by R. Hoe & Co.

About One-half of Offset Press Students with Instructors, Frank Demarest and William J. Murray; Press loaned by Harris-Seybold-Potter Company.

The Library of the Lithographic Department is well stocked with books and current lithographic magazines.

CREDIT AND CREDIT RATINGS

Guiding Principles in the Extension and Maintenance of Credit

By GENE LAWRENCE

"A GOOD reputation is more valuable than money" said a celebrated Roman two thousand years ago, and it is just as true today as it was then. It is an everyday business truth that for credit purposes a man's reputation is considered of more value than his financial worth. Because of a good name, hard-boiled bankers or creditors advance money, goods or services on the debtor's mere promise to pay at a future time.

During the course of a Congressional investigation some time ago, J. P. Morgan was examined relative to a loan of a million dollars made to a particular individual. "On what security was the money advanced, Mr. Morgan?" he was asked. "No security whatever," he replied, "for he had none to put up, but merely on the strength of his character." This incident serves to illustrate the importance of the element of character in obtaining or granting credit.

Obviously, there are material as well as moral bases of credit, such factors as capital and capacity, for failures and losses may result from lack of adequate capital or absence of business ability. However, it is the consensus of opinion of experienced credit men that the element of risk is reduced to a minimum where good character and capacity are present, for credit will supply the debtor with capital in the form of goods or services.

Reputation, of course, depends on past performance. This past performance is reflected in a firm's credit standing. Though many are not aware of it, every important trade or industry has its own specialized credit agency, which keeps complete records of the credit standing of every organization in the trade or industry. For photo-lithographers this means the P. A. T., the Paper and Allied Trades Mercantile Agency. According to Mr. Henry Miller, president of the Agency, the overwhelming majority of representative houses in the paper and allied trades subscribe to their service.

Credit information plays a vital rôle in commercial transactions, and there are few organizations of any magnitude that do not recognize its necessity in the conduct of their business. Inasmuch as credit information serves as the basis upon which credit is extended, good judgment on credit risks depends upon reliable data from trustworthy sources. It is here that the commercial credit agency renders invaluable service.

Because it specializes in one field, P. A T. knows the trade intimately. Its reporters are in constant contact with credit managers and business men, and are familiar with all the conditions, methods, and peculiarities of individual organizations and of the trade as a whole. It is in a position to secure facts by personal observation, as well as by report. The trade opinions and ledger experiences furnished its clients are generally exceptionally complete in number and content. This information usually consists of the length of time the account has been carried on the books of the creditor, the highest amount of credit extended, the current indebtedness, amounts past due, the manner of payment and terms of sale, and trade abuses.

For the use of their subscribers, P. A. T. publishes a credit reference book semi-annually, rating firms according to their capital resources, credit standing, and paying habits. To interpret these ratings, a rating key is furnished each subscriber. A reproduction of the rating key is shown in the accompanying illustration, also the key to the fifty classifications into which the paper and allied trades are divided.

The first of the four rating symbols used is a number, and designates the type of business; the second is the estimated financial worth, shown by letters ranging from A to Z; the third applies to the trade credit standing, rated from A to D. The last rating symbol, consisting of one of six numbers, denotes the manner of payment, whether the merchant discounts his bills, pays promptly at maturity, or is slow in making settlement. Monthly supplements and weekly bulletins keep the credit reference book up-to-date, and covers changes in ratings, bankruptcies, legal matters, dissolutions, new firms, and the like.

Sub. No. Book No.

RATING KEY

CAPITAL

A	$1,000,000 or Over	K	20,000 to 30,000
B	750,000 to $1,000,000	L	15,000 to 20,000
C	500,000 to 750,000	M	10,000 to 15,000
D	300,000 to 500,000	N	5,000 to 10,000
E	200,000 to 300,000	O	3,000 to 5,000
F	100,000 to 200,000	P	2,000 to 3,000
G	75,000 to 100,000	Q	1,000 to 2,000
H	50,000 to 75,000	R	500 to 1,000
J	30,000 to 50,000	S	Less than $500
		Z	Capital Not Estimated

TRADE STANDING

A—High
B—Good
C—Fair
D—Poor

PAYMENTS

1—Prompt and Discounted
2—30-60 Days
3—60-90 Days
4—90 Days and Over
5—Cash
0—Not Established

EXPLANATION OF RATINGS

Ratings are arranged as follows:
First column (Business Classification)
Second column (Capital)
Third column (Trade Standing)
Fourth column (Payments)

EXAMPLES:

42 G B 2—(Classification) Dealer in Paper Mill Supplies; (Capital) $75,000 to $100,000; (Trade Standing) Good; (Payments) 30 to 60 days.

1 Z D 0—(Classification) Printer; (Capital) not estimated; (Trade Standing) Poor; (Payments) not established.

9 O C 4—(Classification) Bookbinder; (Capital) $3,000 to $5,000; (Trade Standing) Fair; (Payments) 90 days to 4 months.

‖ after a rating signifies a signed financial statement in detail on file in our office. Where this sign does not appear, rating has been assigned from figures submitted as to assets and liabilities but not in detail, confidential statements, and verbal statements, which have been confirmed or from details obtained from outside authorities.

‡ after a rating signifies that all information regarding financial responsibility and references have been declined.

* signifies the business to be new, and not fully established in the trade.

★ Special report should be obtained.

KEY TO CLASSIFICATIONS

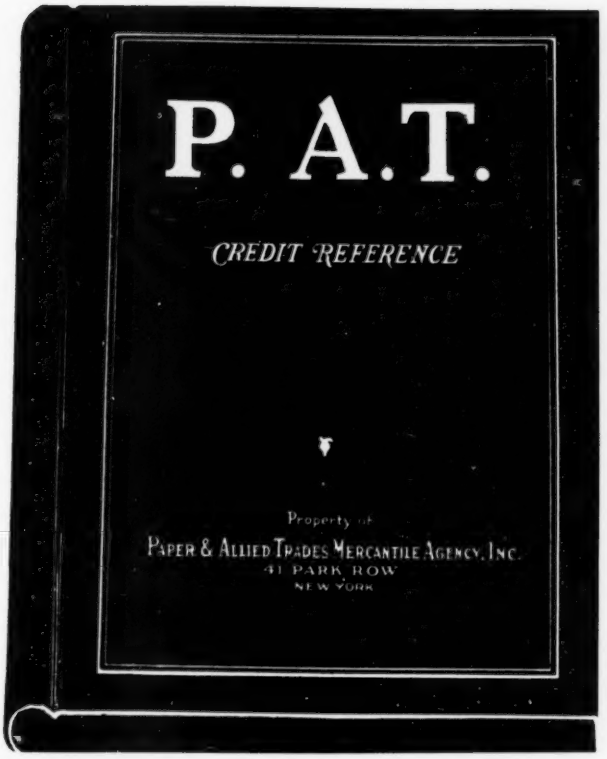
1—PRINTERS (Operating Plant)
2—PRINTERS (No Plant)
3—STATIONERS (Plant for Printing)
4—MULTIGRAPHING, ADDRESSING, MAILING, &c.
5—STATIONERS (Retail)
6—STATIONERS (Wholesale)
7—STATIONERS (Manufacturing)
8—PRINTERS & BINDERS
9—BOOKBINDERS
10—SAMPLE CARD MANUFACTURERS
11—LITHOGRAPHERS
12—PAPER RULERS
13—BLANK BOOK MANUFACTURERS
14—PAPER BOX MANUFACTURERS
15—MACHINE COMPOSITION
16—BOOK PUBLISHERS
17—NEWSPAPER & MAGAZINE PUBLISHERS (Without Plant)
18—NEWSPAPER & MAGAZINE PUBLISHERS (With Printing Plant)
19—MUSIC PUBLISHERS
20—PROGRAM, BOOKLET & MAP PUBLISHERS, NEWSPAPER FEATURES
21—ART & GREETING CARD PUBLISHERS
22—BOOK SELLERS
23—BOOK SELLERS & STATIONERS
24—ADVERTISING AGENTS
25—ADVERTISING SERVICE
26—ELECTROTYPERS & STEREOTYPERS
27—PHOTO ENGRAVERS
28—PLATE PRINTERS & ENGRAVERS
29—PRINTING INK MANUFACTURERS
30—PRINTING MACHINERY OR SUPPLIES
31—PRINTERS' SPECIALTIES
33—STATIONERS' SPECIALTIES
33—BOOKBINDERS' MACHINERY OR SUPPLIES
34—ENGRAVERS' MACHINERY OR SUPPLIES
35—PAPER BOX MACHINERY OR SUPPLIES
36—PAPER MERCHANTS (Fine; Carry Stock)
37—PAPER MERCHANTS (Coarse; Carry Stock)
38—PAPER MERCHANTS (Fine & Coarse; Carry Stock)
39—PAPER BROKERS (Warehouse Stock)
40—PAPER PRODUCTS
41—PAPER MANUFACTURERS
42—PAPER MILL SUPPLIES
43—PAPER CONVERTERS
44—PAPER MILL AGENTS
45—ENVELOPE MANUFACTURERS
46—PAPER BAG MANUFACTURERS
47—STAMPING & EMBOSSING
48—PAPER BOARD MERCHANTS
49—PAPER BOARD MANUFACTURERS
50—LABEL CUTTING, MOUNTING & FINISHING

The primary factors that determine one's trade standing are reputation, current position, quick assets, capital, paying habits, and length of time established. Unfavorable factors are previous bankruptcy, lawsuits, assignments, collection by attorney, and matters of a similar nature. Trade abuses also have an adverse effect on rating, such as the taking of unearned discounts, repudiation of contracts, returning goods without cause, unjust claims, and requests for extensions. Any fraudulent or unfair behavior results in immediate notification of creditors by the agency.

The contents of an agency credit report supplied to clients on call usually covers the name of the firm, location, antecedents and history, its partners or officers, financial condition, value of assets, manner of meeting obligations, fire losses, past record and business ability of the management, reputation for honesty and integrity, accomplishments and prospects, the latest rating assigned, and general comments by the reporter who made the investigation.

Credit, like everything else, may be constructive or destructive, and its use involves the possibility of abuse. It is not always used wisely or properly, and laxity and carelessness in making credit extensions may have disastrous results in fraud or failure. Credit agencies perform a valuable service to both creditor and debtor, protecting the former from unwise risks, and the latter from overtrading.

A merchant's most valuable possession, aside from his assets, is a good reputation as a credit risk. He is granted many times more credit on his reputation than he would be advanced on the basis of his capital alone. Lower prices are often quoted to those with good credit ratings. It facilitates the shipment of goods and prevents delay. If there is a shortage of stock the order may be given priority over orders from poorly rated firms. In placing their business many firms favor those concerns whose rating indicates responsibility.



Cut down your concern over collections by extending credit on the basis of the information in this book.

In view of these facts one's credit standing is well worth safeguarding through just business practices. Prudent organizations are never indifferent to their reputation, for nothing pays larger dividends at such little cost.

May Your Christmas be the Merrier

and full of good cheer because you can look forward to a more prosperous New Year in an industry rapidly growing in consumer acceptance, and better organized than ever before!

The Photo-Lithographer

Specimen Review

By EDWARD C. STERRY

• Specimens intended for review should be marked as such on the envelope or package. Readers are urged to send in samples of their customers work as well as their own

McCormick-Armstrong Co., *Wichita, Kansas.*—Good layout and typography, snappy halftones and clean presswork mark the bulk of your specimens. Your own publication, *Impressions*, is particularly interesting. Two of the Coleman stove pieces are printed on the gray side which is desirable to avoid. Your own institutional book is nothing short of a "knock-out." The book contains the largest photo-offset halftones we have ever had the privilege of reviewing. Keep up the good work. (Reproduction opposite page)

C. Parker Loring, *Lewiston, Me.*—"Don't Procrastinate" is an attractive blotter, but where are the others in the series? It's the constant dripping that wears away the stone . . . and breaks down sales resistance. We're looking for some more Loring blotters.

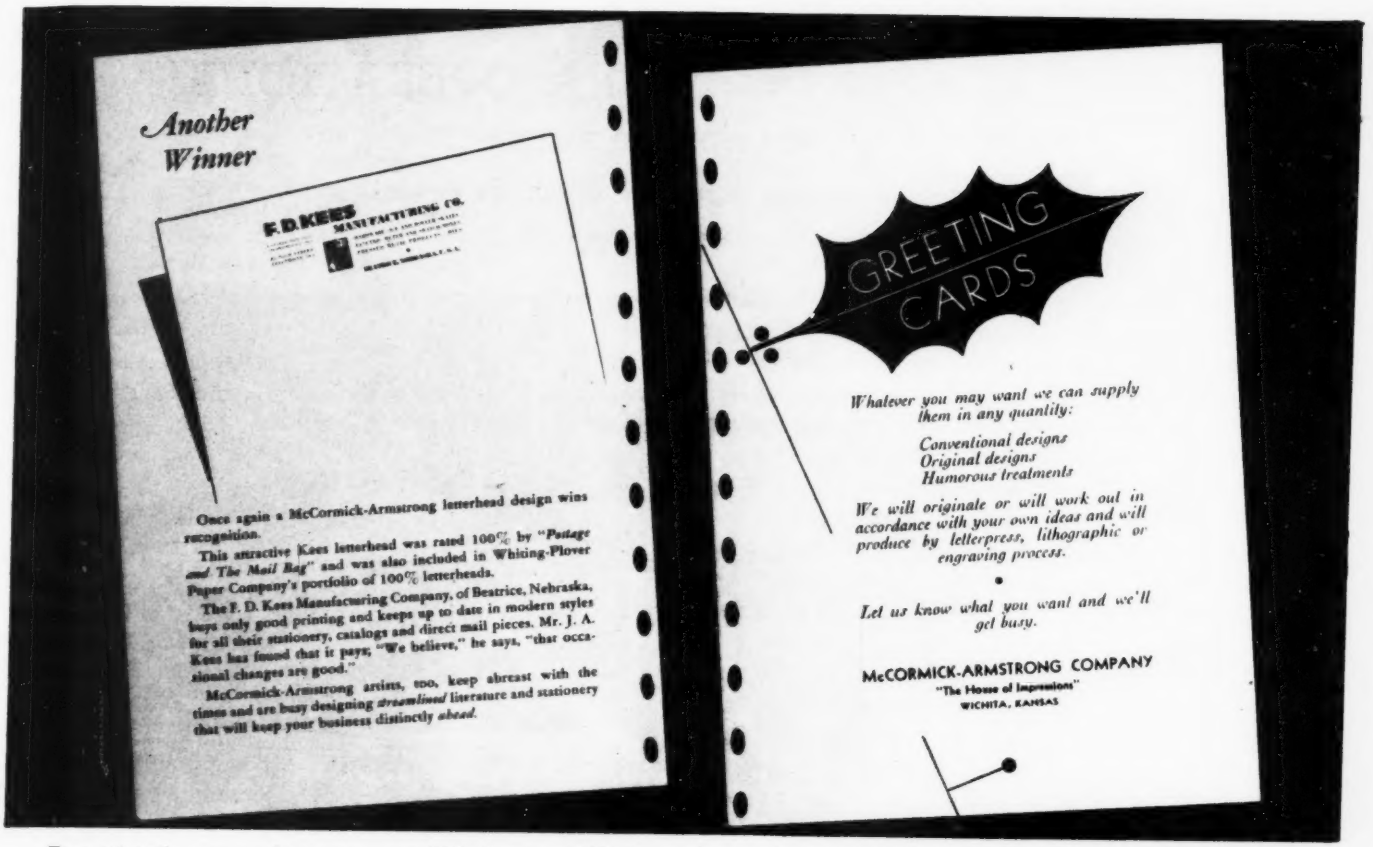
Foto-Lith, Inc., *Cincinnati, Ohio.*—"Making a Move" is a good announcement folder. The "swing" style of the front page and the chronology is rather refreshing.

Kopy Komposers, *Philadelphia, Pa.*—The Varitype typography of both the library guide and the *Teacher Patriot* is very interesting. The press-work (supposedly done by another concern) is not up to a high standard.

Sterling Press, *Los Angeles, Calif.*—Inasmuch as photo-offset work on blotting stock presents a problem we think you have done exceptionally well with your new series. Layout and typography are good, though the copy could be a little more dramatic. (Reproduction below)

REDESIGNING Your LETTERHEAD
Is your letterhead out of date? Does it misrepresent your business? Let us redesign it to make it as modern as your business. Our art department is full of ideas. Telephone now for a representative and samples of what we have done for others. You will be under no obligation.
PRINTERS • LITHOGRAPHERS • ENGRAVERS
1150 Santee Street • Los Angeles, California
Telephone PRospect 2293 • R. A. Hellner, President
GETTING Results FROM DIRECT ADVERTISING
Entrust your Direct by Mail Advertising to us and you will get results. Our trained and skilled workers are able to serve you from the inception of the idea to its completion. Send for a representative now—of course without obligation.
STERLING PRESS
Robert A. Hellner, President
PRINTERS • LITHOGRAPHERS • ENGRAVERS
1150 Santee Street • Los Angeles, California
Telephone PRospect 2293

Two Blotters from an interesting Series by the Sterling Press, Los Angeles, Cal.


Another Winner
F. D. KEES MANUFACTURING CO.
Once again a McCormick-Armstrong letterhead design wins recognition.
This attractive Kees letterhead was rated 100% by "Postage and The Mail Bag" and was also included in Whiting-Plover Paper Company's portfolio of 100% letterheads.
The F. D. Kees Manufacturing Company, of Beatrice, Nebraska, buys only good printing and keeps up to date in modern styles for all their stationery, catalogs and direct mail pieces. Mr. J. A. Kees has found that it pays; "We believe," he says, "that occasional changes are good."
McCormick-Armstrong artists, too, keep abreast with the times and are busy designing streamlined literature and stationery that will keep your business distinctly ahead.
GREETING CARDS
Whatever you may want we can supply them in any quantity:
Conventional designs
Original designs
Humorous treatments
We will originate or will work out in accordance with your own ideas and will produce by letterpress, lithographic or engraving process.
Let us know what you want and we'll get busy.
McCORMICK-ARMSTRONG COMPANY
"The House of Impressions"
WICHITA, KANSAS

Two attractive pages from a snappy little house publication, "Impressions," by McCormick-Armstrong Co., Wichita, Kan.

OHIO LITHOGRAPHING CO., *Toledo, Ohio.*—You've packed a lot of punch in a small space in your folder showing the installation of your new Harris Press. This would be a good piece in a series of mailings. But it has a tough job to do if it stands alone because it contains no real selling message.

ROBERT WILMANS, *Dallas, Texas.*—The idea behind your letter-folder is good. The typography and layout are not as forceful as they might be. An overbalance of "weighty" borders and flourishes tend to weaken the message. The text matter would have been more readable in a size larger and would give a better balance to the layout.

C. W. HILL, *Spokane, Wash.*—The superimposed halftones on your folder "Pictures" are quite unusual. Your treatment of the inside spread is equally good. Short sentence copy puts over your message interestingly.

HENRY FORD TRADE SCHOOL, *Dearborn, Mich.*—Considering that the *Craftsman* is produced entirely through student effort we think you are doing a fine job. A little larger type in the running head would improve the pages. The liberal use of subheads also tends to break up the possible monotony of typed pages. Try omitting the column rule and use only the white space between the columns. This will give your pages a magazine appearance rather than that of a newspaper. Good corner joints in panels and boxes also are a mark of refinement in good typography and make-up. We like to encourage students. Send along a few more copies.

JAYELL PRINTING SERVICE and ALPINE PRESS, *Boston, Mass.*—The *Vagabond* is a typical Dreier publication, though we are not thoroughly sold on house organs. Your halftones lack contrast and snap. Inasmuch as this was printed as an "eight" or perhaps a "sixteen" wouldn't you add considerable interest by the addition of color on the inside at so little extra cost?

PHOTO-OFFSET CAMERA OPERATIONS

By THEODORE S. HILLER

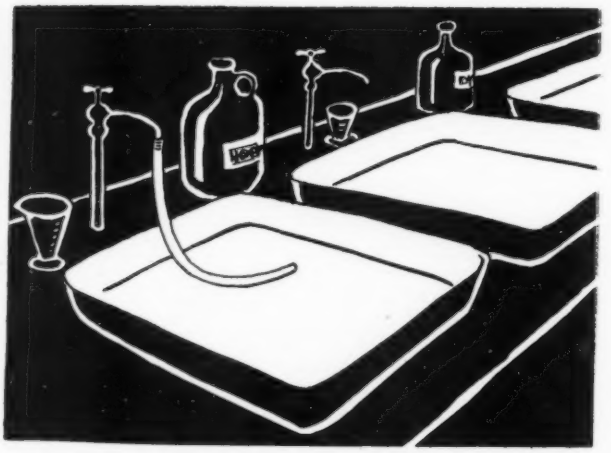
The Fourth of a Series of Articles on Camera Operations

THE most commonly used reducing agent recommended for Offset Paper, Film and Dry Plates is hydroquinone, which reacts slowly in the production of the visible image, but builds greater density than the other developing agents. This characteristic is of prime importance since absolute density in the opaque areas is an essential requirement of a good negative.

Although rapid developing with hydroquinone can proceed only when the temperature of the solution is over 70° Fahrenheit, much of the fine details in the negative will become fogged or stained by this rapid action. It is recommended, therefore, that the developer be used at 65°–68° Fahrenheit and an accelerator be added to compensate for the loss in developing speed. The purpose of the accelerator is to soften the gelatine and permit the reducing agent to penetrate the gelatine and act upon the embedded sensitive silver salts which have been affected by the light during the exposure in the camera or contact frame.

The most frequently used accelerators of one solution developers are paraformaldehyde, potassium carbonate or sodium carbonate, while a caustic accelerator, as sodium hydroxide, is usually used in two solution developers. The single solution developers are mildly alkaline in action and therefore have good qualities, while developers in which the alkali is in a separate solution from the reducing agent can be used only when freshly combined and free from discoloration or oxidation. This type of developer will produce an extremely dense negative with very clean and sharp transparencies.

The developing solution which we have had in mind up to the present has been compounded with ingredients whose properties are such as to expedite the conversion of exposed silver salts into a metallic silver image. No mention has been made of the chemical which will provide for the protection of those unexposed grains of sensitive silver salt which are embedded in the gelatine side by side with those exposed to the chemically active light. Nevertheless, one requirement of a developing solution remains, that it must contain a reducing agent which will confine its action to the latent image. The limitations of this requirement cannot be ignored if useful negatives are to be produced. The inherent characteristics of a reducing agent are greatly overwhelmed, however, by the addition of an accelerator. The possibility of chemicals producing a fogged or stained negative are also apparent unless some means are taken whereby these troubles can be avoided or completely eliminated. Potassium Bromide has the ability to restrain the wayward



action of a highly activated reducing agent, especially during the early stages of development, as well as the ability to eliminate the contraction of chemical fog in the denser portions of the negative.

Boric acid also has a neutralizing or restraining action on a strong caustic and is usually added to a solution in which paraformaldehyde and potassium metabisulphite are compounded. The reaction of boric acid is such that it also decreases the swelling of the gelatine and the formation of large grains of metallic silver in the image.

To summarize the above statements, the following ingredients are most essential for the proper functioning of the developer:

A. A reducing agent or developing agent to bring up the visible image, i. e., convert exposed silver salts into metallic silver.
B. The preservative—reduce speed of oxidation.
C. The accelerator—swell the gelatine and aid the action of the reducing agent.
D. The restrainer—retards the accumulation of fog, retards developing action.
E. A buffer (used in one solution developers with paraformaldehyde and metabisulphite)—decreases the strength of the caustic, thereby retarding developing action, and produces fine grain.

The reaction of each chemical is very important to the efficient function of the complete solution as it converts the exposed silver into a visible image of metallic silver and, therefore, too much or too little of any one chemical will tend to throw a normal solution out of order. The following reactions occur when any one of the four important parts of a developer are omitted or added in excess.

Ingredient	Too Much	Too Little
Reducing Agent	Uncontrollable developing action. Excessive contrast. Fogs highlights.	Slow development. Loss of density. Thin negatives.
Accelerator	Quickens development. Reducing agent is less selective. Dense negatives. Loss of contrast. Negatives are brown.	Slow development. Loss of shadow detail and dots. Shadows thin. Highlights flat.
Preservative	Slow development. Negatives are green black.	Rapid deterioration of the developer. Developer turns brown.
Restrainer	Retards developing action. Producing a weak negative image.	Highlights become dense and fogged.
Buffer.	Slows developing action.	Transparencies become clogged and highlights are fogged.

Too little water will result in a highly concentrated developer and will cause the image to appear too quickly and to gain density at an uncontrollable rate, with a consequent over-development in all the tones of the negative. Excessive dilution of a developer reduces the chemical content and will result in soft gray negatives which lack density and contrast. In every case it is advisable to compound and use the developing solution as the manufacturer recommends. Exactness in the measurement of chemicals and solutions will overcome the cause of many make-overs. Standardization of the developer is also advisable, since it is upon a standard developer that the emulsion manufacturer bases his tests of the relative speeds of his emulsions.

Briefly, there are four factors which control developing time—

1. The exposure.
2. The strength and the type of developer.
3. The temperature of the developer.
4. The type of film.

Factors 1, 2 and 3 are controllable by the camera operator and their standardization will tend to facilitate a regular output of normal negatives. The fourth factor depends upon the latitude of the particular paper, film, or dry plate in use. This, also, has been standardized to a great extent by the manufacturers.

Although the above factors are recognized as the controlling points in the development of ideal negatives, some operators attempt to make the developer correct errors in under- and over-exposures. In order that a strong latent image can be developed to proper density into a visible image, exposures must be sufficiently long to avoid the necessity for forced development.

The degree of contrast rendered in the negative, however, can be controlled to a certain extent during development. This is usually very effective in continuous tone negatives where less contrast is desired and is accomplished by diluting the developer or developing with a normal solution for a short time. When an increase of contrast is required the developer should be used in a concentrated condition but only for the length of time during which the density of metallic silver grows. Any additional development will cause little increase in contrast but it will produce a strong fog.

The amount of developing solution used in the tray during developing should be sufficient to cover the negative evenly after the negative (if it is paper or film) has been immersed emulsion side down and immediately turned over to emulsion side up. Dry plates are developed emulsion side up after sliding the plate under the developer. This operation is easily accomplished by tilting the tray to a 30° angle and, by an even motion, sliding the plate into the tray and allowing the developer to cover the plate with one even flowing.

Agitating the developer is very essential in securing an evenly developed image, because it removes the waste oxidized solution and replaces it with fresh developing solution throughout the entire surface of the exposed emulsion. This procedure will produce uniform density over the entire negative without mottling or streaks. The tray should be rocked so the solution proceeds from corner to corner in a horizontal and vertical motion.

Fixing Procedure and the Chemicals Involved

The formation of a visible image of metallic silver accounts for only half of the operation called "Photography." The necessity of making the negative image permanent to the effects of actinic light during future handling is most apparent to one who compares a poorly fixed negative with a correctly fixed negative. The purpose of the fixing solution is to dissolve the unexposed and undeveloped silver salts and thus remove the milky or opalescent color which is apparent through the back of the negative.

Only a few substances are capable of dissolving these unexposed silver salts but only two are of practical value and are actually applied as fixers. These two are potassium cyanide and sodium thiosulphate or hypo. Potassium cyanide is much too powerful in its undercutting action on gelatine silver emulsions, especially on the shadow detail, thus leaving hypo as the most useful ingredient.

A solution of plain hypo will work quite well at 60° Fahrenheit but its efficiency life is extremely short because of the amount of alkaline developer carried in the gelatine of the negative. Hypo works best in a neutral solution but a very weak acid will aid the extent of its effective life. The acid in the fixer neutralizes the alkalinity of the developer and thus increases the hypo's life.

It is usually recommended that the negative be given a good rinse in water after development with an additional immersion in a short stop acid bath. This acid solution lengthens the life of the fixer, stops the immediate action of the developer and overcomes the possibility of stain in

(*Continued on page 60*)

Lithographers Win Leading Awards in Annual Outdoor Exhibition

FIRST AWARD. *Lithographed by* FORBES LITHOGRAPH CO.

THE comparative "scoring" of lithographers, according to the number of recognitions received, in the Eighth Annual Exhibition of Outdoor Advertising Art, held in Chicago, November 18 to 27, as compiled by THE PHOTO-LITHOGRAPHER, is as follows:

Edwards & Deutsch Litho. Co.		
Honorable Mention	3	
Among "Hundred Best Posters"	13	16
Latham Litho. Co.		
Honorable Mention	1	
Among "Hundred Best Posters"	10	11
Forbes Litho. Co.		
First Award	1	
Among "Hundred Best Posters"	9	10
Gugler Litho. Co.		
Among "Hundred Best Posters"		9
Continental Litho. Co.		
Among "Hundred Best Posters"		8
McCandlish Litho. Corp.		
Second Award	1	
Honorable Mention	2	
Among "Hundred Best Posters"	4	7

The Third Award was a painted bulletin.

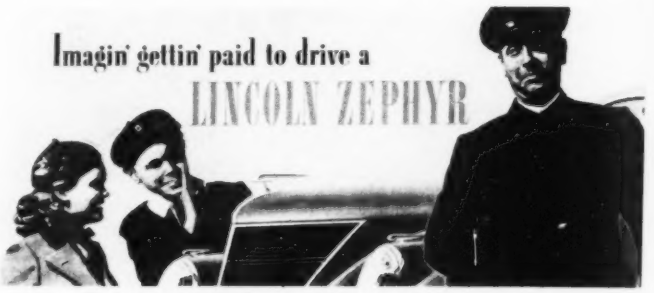
One Honorable Mention went to Compton & Sons, also one to Rusling-Wood. Two of the Honorable Mentions were hand painted.

Other lithographers who won places among the "Hundred Best Posters" are:

Central Ptng. & Illinois Litho. Co., 6; Strobridge Litho. Co., 4; Erie Litho. Co., 3; National Ptng. & Engr. Co., 3; American Poster Corp., 2; Compton & Sons, 2; Strobridge Litho. Co., 2; Thomson Symon, 2; Western Litho. Co., 2; Spurgeon Tucker, 1; Tooker Lithograph Co., 1.

Prize awards for these best Outdoor Advertising designs of 1937 were presented November 18 at a special luncheon held in the Wedgewood Room of Marshall Field & Company, Chicago.

The Eighth Annual Exhibition of Outdoor Advertising Art, with its associated awards, was established eight years ago by Burr L. Robbins, Vice President of The General Outdoor Advertising Company. The exhibit, international in scope, is the only one of its kind representing a parade of the most successful outdoor advertising campaigns during the current year.



SECOND AWARD. *Lithographed by* MCCANDLISH LITHOGRAPH CO.

THIRD AWARD. *Painted Bulletin*

Mr. Robbins, who was Chairman of the 1937 Exhibition, dedicated the original exhibition to encouraging by example the development of better merchandising ideas, as well as the cultivating of increasingly high artistic standards.

The Jury of Awards, who selected the prize winners, represent a group of leading advertising executives in all forms of media.

The three prize winning sketches and the ten designs receiving honorable mention, together with the 100 adjudged best designs of the year, were publicly exhibited in the galleries of Marshall Field & Co., in Chicago, from November 18 to November 27.

The Ten Honorable Mentions

Lithographed by LATHAM LITHOGRAPH CO.

Lithographed by EDWARDS & DEUTSCH LITHOGRAPH CO.

Lithographed by RUSLING-WOOD

Lithographed by COMPTON & SONS

Lithographed by EDWARDS & DEUTSCH LITHOGRAPH CO.

Hand Painted

Lithographed by EDWARDS & DEUTSCH LITHOGRAPH CO.

Lithographed by MCCANDLISH LITHOGRAPH CO.

Hand Painted

Lithographed by MCCANDLISH LITHOGRAPH CO.

YOUNG LITHOGRAPHIC EXECUTIVES ORGANIZE

UNDER the constitution eligibility to membership is limited to persons who are now and have been for at least twelve consecutive months employed by lithographic establishments engaged in the manufacture and sale of lithographic products. It is also provided that up to 20% of the membership may consist of men who are now and have been for at least twelve consecutive months employed primarily in a non-selling capacity by concerns which manufacture and sell supplies or services to the lithographic industry.

The Board of Governors was given power to waive any of the membership requirements for the time being.

According to the constitution the Board of Governors is given wide powers in the handling of business for the Association. In this way meetings of the Association will not be used up in the discussion of minor matters.

At least one-third of the Board must change every year so that no single group can remain in control indefinitely. The president must be a member of the Board, and not more than two supply men can serve on the Board at one time.

The following officers were unanimously elected to serve until the first annual meeting is held in March:

President—John L. Kronenberg
Vice-President—W. Stuart Powers
Secretary—Norman Bernhardt
Treasurer—George Schlegel, III

Benjamin M. Robinson will serve as general counsel to the Association.

More than fifty representatives of over twenty lithographing establishments attended a dinner meeting at the Advertising Club of New York on December 3, the purpose of which was to effect a permanent organization of the Young Lithographers' Association.

John L. Kronenberg of the American Lithographic Division, acting as temporary chairman, stated the purposes of the new Association—"to promote friendly relations among the members, to provide a forum for an exchange of ideas and discussions of mutual problems affecting or relating to the industry, and to provide group activity to aid the growth and improvement of the lithographic industry."

William M. Winship, sales manager of the Eastern Division of United States Printing & Lithograph Company, reported on the activities of the Steering Committee of six men who had been appointed at a previous meeting.

Benjamin M. Robinson, formerly counsel for the Lithographers Code Authority, presented the Constitution which he had drawn up in conjunction with the Steering Committee. It was adopted unanimously.

JOHN L. KRONENBERG
President Young Lithographers' Association

The following members were elected to the Board of Governors, to act until the first annual meeting in March, 1938:

John L. Kronenberg—American Lithographic Division
George Schlegel, III—Schlegel Lithographing Co.
Norman Bernhardt—Sweeney Lithographing Co.
W. Stuart Powers—Ketterlinus Lithographing Co.
Wm. M. Winship—U. S. Printing & Lithograph Co.
Alfred Rode, Jr.—Rode & Brand
Fulton MacArthur—Reynolds Metal Co.

Mr. Kronenberg announced that the first regular meeting of the Association will be held the first week in January at the Advertising Club. The proposed program will be mailed to members in advance of the date.

The Young Lithographers' Association voted to fix the annual dues at $5.00 and the initiation fee at $5.00. Applications for membership must be made in writing to the Board of Governors together with a tender of the initiation fee of $5.00.

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STUDIES IN SALES MANAGEMENT

For Administrative Heads and Ambitious Salesmen

By WILLIAM WOLFSON

A RECESSION is what the current slow-up of business is called. And, naturally, all of us are sick and tired of depressions, think it about time we are climbing back to normal, and hope that the condition facing us is a brief temporary relapse. Just how all this affects us is summed up in the observation of a shrewd veteran of the graphic arts:

"In the good old days," he said, "some of my customers were apt to comment on the fact that business was slow with them and decided to put out a catalogue or some mailing pieces to pep up orders. They did not hesitate to spend a few thousand dollars. Now when they experience a dull period, they do not know what is coming and therefore hold on to the money."

In other words, there is a decided difference between conditions surrounding one commercial enterprise—one surmounted by efforts of their own—and conditions enveloping all industries. And it is when times are slow that all of us are the more concerned with sales. Perhaps salesmen are harassed and driven. Perhaps the heads of photo-offset lithographic houses do some foraging on their own account. That is to say, despite a general drop of business activities throughout the country, each company endeavors to win out in the competitive scramble for what orders are available.

When our plants again have all of the work they are capable of handling, this matter of focusing attention upon salesmen and upon sales is forgotten. Yet it is important that a profitable control of salesmen's activities is exercised at all times.

Often salesmen are left alone to their own resources. Those who bring in business equal to or in excess of their drawing accounts are deemed good producers capable of managing their own affairs. Only when a salesman's volume drops to considerably below his established drawing account over a period of time is cognizance taken of this state of affairs by the heads of the business.

Salesmen who are taken on under a commission arrangement and given an insignificant sum weekly are under observation, of course. Should they fail to secure orders for weeks or several months, they are considered "all washed up" and called upon the carpet. On the other hand, men who come in on a commission basis and who are not given a drawing account are permitted to continue for almost an indefinite period; but, usually, they drop out of the picture sooner or later of their own accord when they do nothing or very little in the way of sales.

A watchful waiting policy, however, is not sales direction nor is it sales management or control. Too often this phase of the business is slighted by the owners. Frequently the individual who is designated as the sales manager is so in name only—not by reason of his ability to manage and to control. The office is merely an honorary one; the incumbent may either be incompetent or is simply saddled with another title which is meaningless after a fashion. To decide trivial disputes between salesmen, to pinch hit for a salesman when he is out of the office, and to attend to other small details, do not make one a true sales manager.

Why a Sales Manager is Necessary

No sane photo-offset lithographer would permit haphazard functioning of all departments of his plant. He would not allow orders to flow through without definite instructions; encourage a pressman's helper to walk away from his job and begin shooting halftones; or disregard mistaken zeal on the part of the platemakers should they begin to make an additional plate for every simple, short-run combination form, on the off-chance that were any one of such plates to go bad another would be available for the press immediately.

Yet the same lithographer sends his salesmen out in the field to do as they wish. It is erroneously assumed that any salesman is qualified to make the best possible use of his working hours. *Be assured the average salesman is not so qualified.*

Left to work out their own salvation, even the salesmen who maintain sufficient volume to cover their drawing accounts do not progress. You will discover that the majority in this class, through the years, eventually hit a definite level. Year after year they remain on this same level. They do not mount higher. Now and then there is a spurt ahead, but this is balanced by the occasional fall behind. As a matter of fact, such salesmen are prone, sooner or later, to drop downwards—especially when several big accounts happen to be lost.

The fault is not with the men. They may be loyal and conscientious. Because they lack direction and control, they lose out. They may acquire the wrong habits, weaknesses. They may be covering too much territory or too little; be making too many calls or too few; or may be applying themselves the wrong way. No one in the office knows their shortcomings, therefore they are not in-

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formed, not cheered up and inspired to go along the right paths. They have no one capable of helping them to help themselves.

Furthermore, the right kind of specific information is not given to them. They are, however, ridden hard in the event of any error. Usually, where there is no direction and control, the sales promotional help is prone to be weak, insufficient or altogether lacking.

I appreciate that many of the smaller plants cannot afford to engage the services of an experienced sales manager. It may be that too few salesmen are employed by such a plant. The owners may not be ready to put on additional men for a number of reasons. Nevertheless, a single salesman needs as much direction and control as a large staff. Where the owners go out after business, they then act as salesmen. By the same token, they should understand the principles of sales management in order to become better salesmen themselves when they play the part, and know how to handle the one or two salesmen they now have. It is for these reasons that I head this series of articles "For Administrative Heads and Ambitious Salesmen."

Some Concrete Examples

Let us start off with the assumption that a new man is added to your sales force. He knows nothing of photo-offset, but is impressed with the method of production. He formerly sold insurance, let us say, and is accustomed to working cold. He asks for no drawing account, only an opportunity.

Now, it takes time to acquire the necessary knowledge. The easiest way out with such a man is to start him off soliciting combination runs, since he can be given rates. He is also furnished with samples, and included are specimens of simple color work and other jobs individually handled.

The man starts out full of enthusiasm. He returns again and again to the office to secure quotations. Most of these unfortunately are jobs more economically handled by letterpress or other processes. The house knows that there is but a remote possibility of getting the order, but the work is estimated and the figures given to the man.

Enthusiasm wanes. A week or two later this man who might have been developed into a good photo-offset salesman is seen no more. He has quit.

Why? It is obvious this man was impressed with photo-offset lithography, yet in the wrong way. His idea was that here is a process which is decidedly cheaper than printing. Any user of printing could save money. That is just what he told the people he called upon. That is why he was given printing jobs already done merely for comparison of prices.

Some peculiar things occur under the circumstances. Remember, this new salesman has not been "made ready" to sell right. He brings in a booklet. The estimator may figure on a reprint, so no composition is included, no halftones, layout, etc. He is promised an order within a week—"just as soon as the copy is written and the new photographs are ready." He is jubilant as he reports this. Talk about depressions, he enters a personal one when he is informed:

"Hold on! The price quoted was for a reprint of the booklet submitted, not for a new booklet necessitating type composition, the shooting of halftones, etc. You will have to get the dummy and give them a revised figure."

How much wiser it would be to put such a man through an intensive course of instruction before turning him loose. Here is a man willing to give of his time. He should have been probed, told what was required, and it is possible he still would have been willing to give of his time in order to prepare to sell. Mismanagement resulted in the loss of a good man, in much waste of time.

Let us go on to another case. A salesman earns twenty dollars a week. By that I mean, he has established a certain number of customers who provide him with around eight hundred dollars worth of business each month. This salesman is ambitious. He conceives the idea of calling upon book publishers to secure orders for reprints of volumes. This plan he discusses with no one. He feels certain he ought to be able to pick up some business—nice, juicy orders.

So he compiles a list of publishers and makes his rounds. Mind you, he does not neglect old customers; this new project comes under the head of "new business." Desirable business. Business which will boost his income surprisingly.

He secures permission to tote around one or two books turned out by his house. He states he believes he knows where a reprint of a book is wanted. (Here let me say that almost any photo-offset house in business for a number of years may chance upon an incidental book job.)

Our salesman plugs and plugs his new project hard. Eventually he comes in with a book for an estimate. Then another. Then a third or a fourth. In every instance his price is too high. Finally, he is "wised up." He learns a number of things:

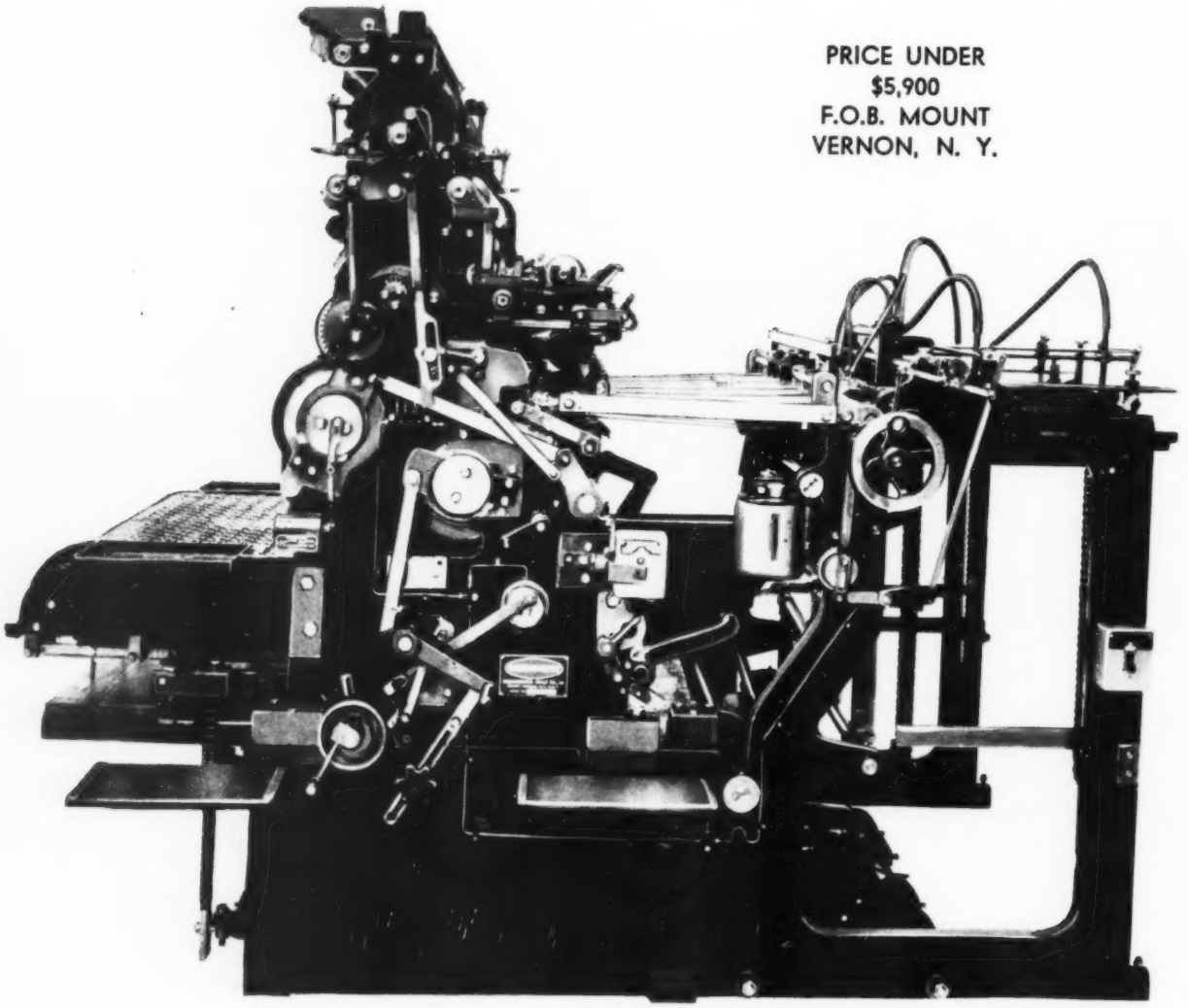
(1st) The 17 x 22 and the 22 x 34 presses which comprise the plant's equipment are not adequately large enough sizes for reprints of heavy tomes.

(2nd) Such jobs are best handled when the plant possesses cameras handling rolls of negative paper, not open cameras partially within dark-rooms, which are the only kind operated in the house he represents.

(3rd) There are photo-offset lithographers who specialize on book jobs, and are geared up to do them; and so buy special paper stock in large quantities, have large binderies as part of the general equipment, etc.

The salesman meant well. He knew enough about photo-offset lithography to understand that old books, where

(*Continued on page 55*)



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RECOMMENDATIONS AND FORMULAE FOR ALBUMEN PLATE MAKING

Courtesy Hammer Dry Plate & Film Co.

THE recommendations and formulae contained in this paper are based on studies of method and procedure employed in the successful making of albumen plates, and are offered for the purpose of assisting in this phase of the industry. However, it is not the intention to suggest a change of routine in plants now producing satisfactory plates although data contained herein may prove of valuable assistance to such plants.

Many theories in procedure have been advanced for the making of albumen plates, but our study and experience convince us that the basic requirement for successful albumen plate making is the use of tested chemicals properly compounded to exact formulae, plus careful, systematic, and mechanical procedure.

There are many prepared solutions for albumen plate making on the market and taking them all in all, results have been satisfactory. There is, however, some question as to whether time saved as the result of using prepared chemical solutions offsets the additional cost involved. Therefore, to such plants as prefer to mix their own solutions the following recommendations and formulae will be of assistance.

Counter Etch Formula No. 1
For Zinc Plates

Water	1 gallon
Hydrochloric acid (C. P.)	1 fluid ounce
Ammonium alum (C. P.)	4 ounces
Ammonium bisulphate (C. P.)	1 ounce

Add chemicals in order named to water in glass container.

Counter Etch Formula No. 2
For Zinc Plates

Acetic acid (28%)	8 ounces
Water	1 gallon

Both of the above formulae produce satisfactory results. It must be kept in mind, however, that when Formula No. 1 is used this formula must be followed throughout the various steps of the work. The same applies to Formula No. 2.

Step No. 1

Counter Etching the Zinc Plate

The plate must be inspected for grain, and cleanliness from oxidation, keeping in mind that grain should be deep and even. For line work and ordinary halftones a medium grain should be used; for fine line halftones a fine grain medium should be used. Place the plate in a tank under lukewarm running water, then scrub thoroughly with a bristle brush. Drain water from the plate and follow with the counter etch solution selected, distributing same evenly over the plate with a brush after which rinse the plate thoroughly and place in whirler while still wet. The plate is now ready for the sensitized coating, and this coating should be applied before the plate is entirely dry.

Plate Sensitizer
Formula No. 1

Water (distilled)	32 ounces
Egg albumen (scales)	7 ounces

At least three hours are required for proper dissolving of the albumen, a better method, however, being to dissolve the albumen overnight. When thoroughly dissolved, filter the solution through cotton. Decrease the water in warm humid weather.

Water (distilled)	8 ounces
Glue (photo-engraving)	1 ounce

Dissolve glue thoroughly in water and add to albumen solution.

Water (distilled)	15 ounces
Ammonium bichromate (C. P.)	2 ounces

Dissolve bichromate in water (warmed) and add to glue and albumen solution.

Water (distilled)	3 ounces
Ammonia water U. S. P. 26°—28%	½ ounce

Finally add the ammonia solution. In combining these solutions each should be thoroughly stirred before additions are made. The completed solution must stand three to four hours before using, and must be kept in well stoppered brown bottles. The amount of the solution required for each plate coating should be strained through moist cotton before being applied to the plate.

Plate Sensitizer
Formula No. 2

Sol. A.—Water (distilled)	24 ounces
Albumen (flake)	3 ounces

Thoroughly dissolve albumen in water.

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Sol. B.—Water (distilled)	.....	8 ounces
Ammonium bichromate	.....	1 ounce
Sol. C.—Water (distilled)	.....	8 ounces
Ammonia water (28%)	.....	½ ounce

Thoroughly mix Solution B into Solution A and then add Solution C. Allow the completed solution to stand three to four hours, and before using strain through moist cotton the quantity required for coating.

Step No. 2

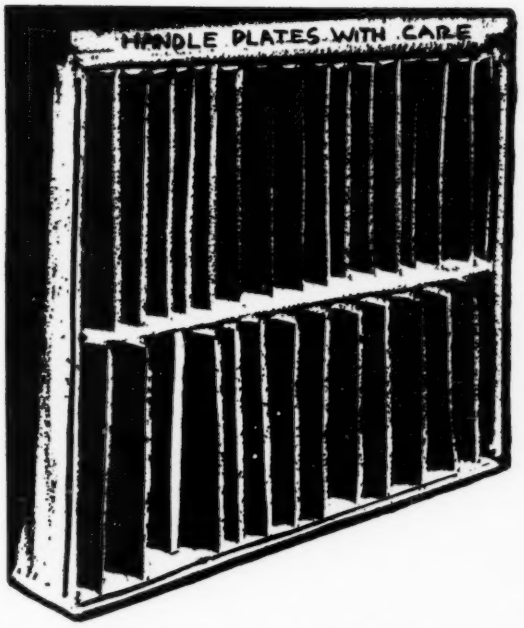
Applying Sensitizer to the Plate

After filtering through cotton be sure that solution is free from air bells. A piece of lintless cheese cloth doubled and placed over lip of graduate when pouring will practically eliminate any chance of bells. Most workers apply sensitizer with whirler revolving at a slow speed and increase speed for drying. Others prefer constant whirling speed, and claim more uniform coatings from this method. A few trials will determine the speed best suited to your needs. The whirling speed is also governed by the grain of the plate. A slower speed is required for coarse grained plate and a faster speed for finer grains. A slow coating speed with an increased drying speed is recommended for coarse grained plates while a constant speed will ordinarily produce a more even coating of finer grained plates. After coating, close the lid of the whirler, turn on the heat element to aid in drying, and allow plate to whirl until thoroughly dried. Follow the recommendations of the manufacturer of your particular type of whirler.

Step No. 3

Exposing the Plate

The coated plate is now ready to expose in the vacuum frame or composing machine. Exposure of the plate under the negative, where the negative permits the arc light to reach the plate, will act to render the sensitized coating insoluble in water. The dense, opaque portions of the negative prevent the light from striking the sensitizer, and these areas remain soluble in water. The exposure time is determined by the transparency of the clear areas of the negative. The dense portions of the negative must be opaque enough to permit sufficient exposure in clear areas to render coating insoluble down into grain of the plate. A recommended method to determine exposure necessary is to make several exposures from the same negative by covering portions of the plate with paper, and, after development, exposure time can be determined by that section which best reproduces lines or dots contained in the negative. The belief that a poor negative can be corrected in printing onto the plate is incorrect as there is no substitute for good negative quality. It is possible, however, to slightly increase the size of line or dot by excessive burning. It is not possible to decrease the size of dot or line by underexposing and still produce a plate that



will stand up on press. Exposure insufficient to penetrate coating will leave a portion of the coating beneath the exposed area soluble in water and fountain etch will quickly undermine the dot and the plate will break. It is better to overexpose and develop than to underexpose. A plate that will not stand a brisk rubbing with molleton certainly cannot be expected to withstand press pressure. Hammer offset plates and film can be depended upon to produce the ideal negative for albumen press plates.

Step No. 4

Application of Developing Ink

After exposing, a good grade of developing ink is applied evenly over the exposed work on the plate. The ink should be rubbed well into the grain of the plate with a clean, soft, lintless cloth and applied with an even circular motion. After the ink is spread, smooth the surface with a dry cloth and then allow the plate to dry. A fan or blower will aid in drying. Developing ink renders a light hardened image more receptive to ink from the press rollers, and provides well defined image after development.

Step No. 5

Developing the Plate

Place the inked plate in the developing tank under a stream of lukewarm water, allowing water to run over the entire plate for a sufficient time to loosen the unexposed coating. The development is then completed by rubbing the plate with a tuft of cotton or piece of molleton until all unexposed coating is removed. Water is kept running over the plate during the entire development. A spot that is allowed to dry will oxidize, resulting in a tint developing on press. A plate should not develop too easily as a plate of this nature usually indicates a short

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life on the press. On the other hand, a plate that is too difficult to develop—due to overexposure or faulty chemicals should be discarded. Plates that develop with difficulty may be aided with a weak ammonia or bicarbonate of soda solution. (2 fluid ounces of a 28% ammonia solution to 1 gallon of water) or (2 avoirdupois ounces of bicarbonate of soda to 1 gallon of water). Remove all the unexposed coating possible without injury to the image, then flush the plate thoroughly with water. The plate is now ready for etching.

Albumen Plate Etch

Formula No. 1

Sol. A.—Gum arabic (in solution). 18 fluid ounces gum solution to test 10° Baume. A quantity of gum solution should be mixed, as a solution of this hydrometer reading will be used in gumming up the plate and in the fountain etch. Dissolve gum with just enough water to cover and then add sufficient water to give desired hydrometer reading.

Sol. B.—Water (distilled)	8 ounces
Ammonium bichromate (C. P.)	1½ ounces
Sol. C.—Water (distilled)	4 ounces
Ammonia water 28% U. S. P.	¼ fluid ounce
Phosphoric acid (syrupy 85%)	1 fluid ounce

After thoroughly mixing Solution A, add Solutions B and C in order.

Albumen Plate Etch

Formula No. 2

Sol. A.—Water (distilled)	4 fluid ounces
Ammonium bichromate	1 ounce avoirdupois
Sol. B.—Water (distilled)	2 fluid ounces
Phosphoric acid 85%	1 fluid ounce
Sol. C.—Gum water 35° on hydrometer	18 fluid ounces

Dissolve pure gum arabic (sorts) to test 35 degrees on silver nitrate scale hydrometer. Then add Solution A, Solution B, and Solution C in order, mixing each thoroughly as added.

Step No. 6

Etching the Plate

The etching solution is applied to the entire plate with a soft acid brush and allowed to remain for from one-half to one minute. The etching solution desensitizes the plate by depositing a thin layer of gum in the grain of the plate, permitting the grain to retain, in the open areas, the moisture from the water dampener on the press. Quite often light action on a fully developed plate results in a slight hardening of the albumen coating directly adjacent to edge of the image. The etching solution removes this coating to allow all open portions to be desensitized. Do not etch for too long a time as acid etch may affect light hardened image and cause swelling. Remove etching solution by flushing plate thoroughly with water, being careful to remove all traces of acid in etch before gumming the plate.

Step No. 7

Gumming the Plate

Apply a gum solution with a sponge and smooth off with a clean lintless cloth. The gum protects the plate from oxidization. All portions of the plate must be covered and all surplus gum must be evenly distributed with a clean cloth, then dry the plate with a fan or blower. The plate is now ready for the press.

Gum Solution Formula

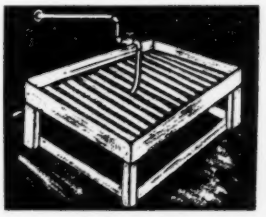
Dissolve gum arabic in just enough water to completely cover it when completely dissolved. Add additional water to bring solution to 10° Baume. Keep solution in stoppered glass bottle—never in iron or metal containers. To keep fresh, add a few drops of carbolic acid occasionally. Always use the best grade of gum arabic (sorts)—a test of quality can be made when dissolving. A gum that will not thoroughly dissolve when covered with water, and has a stringy appearance, is not satisfactory.

Preparing Finished Plates for the Press

If black ink is to be used on the press, further treatment of the gummed plate is unnecessary except that the gum is removed from the open portions on the plate with a soft sponge and water after placement on the press, which operation is followed by rolling the plate up on the press with the impression cylinder released.

If colored ink is to be used on the press, or the plate has previously been dusted for protection, the black developing ink and the protective coating should be removed before the plate is put on the press. The black developing ink may be removed with a solvent turpentine applied with a clean, soft cloth. A solution of asphaltum and turpentine is then applied after which the plate should be fanned dry. (The solution is composed of 18% solution of Egyptian asphaltum in gum spirits of turpentine.) The plate is then ready for the press where it is cleaned with a damp sponge and rolled up in the usual manner with the impression cylinder lifted.

Plates that are to be stored for future orders after press run has been completed should be treated as follows: Roll up plate with cylinder lifted, dust with talcum on tuft of cotton, apply gum solution, and dry. For additional protection a coating of the asphaltum solution may be evenly applied over the gum.



(*Continued on page 65*)

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SALES REPRESENTATIVES IN PRINCIPAL CITIES

THE SUPERINTENDENT IN THE LITHOGRAPHIC INDUSTRY. PART III.

By ADAM HENRY REISER

THE first two articles of this series dealt with an analysis of the duties of the lithographic superintendent, listing those duties under three headings: Personnel, Mechanical, and Administrative. A development of the Personnel and Mechanical groups was attempted in those articles. It is the purpose of this last article to finish the Mechanical and Administrative factors, and answer a few of the more important questions that have come to the writer's attention on this work.

How Much Trade Experience?

Under the head of trade qualifications or mechanical duties, some feel that the superintendent must understand the mechanics of production so thoroughly as to permit him to fashion some sort of Rube Goldberg device, something like a continuous belt system to catch falling parts from second-hand presses and faulty equipment.

Seriously, however, to determine the degree of trade knowledge and judgment necessary to the superintendent, it is wise to qualify. Much depends upon the size of the establishment. Arbitrarily to set a standard for the knowledge requirements, or any of the other desirables, would be foolhardy. The size and type of plant are the two main factors that must determine in the long run the kind and profundity of lithographic ability necessary to the superintendent.

It is conceivable that a small shop may have more need of a working superintendent than a large establishment. A ten or twelve man shop of one type may need the working-type of foreman and superintendent. On the other hand, another type of twelve man shop may call for full supervisory activities on the superintendent's part. And when the working force is increased, the superintendent's supervisory demands are increased. He no longer has time for actual bench work. He becomes the coordinator in every sense of the word, lining up the factors so that they operate with the highest possible degree of efficiency and proficiency. Of course, to do this properly he must possess trade knowledge, too.

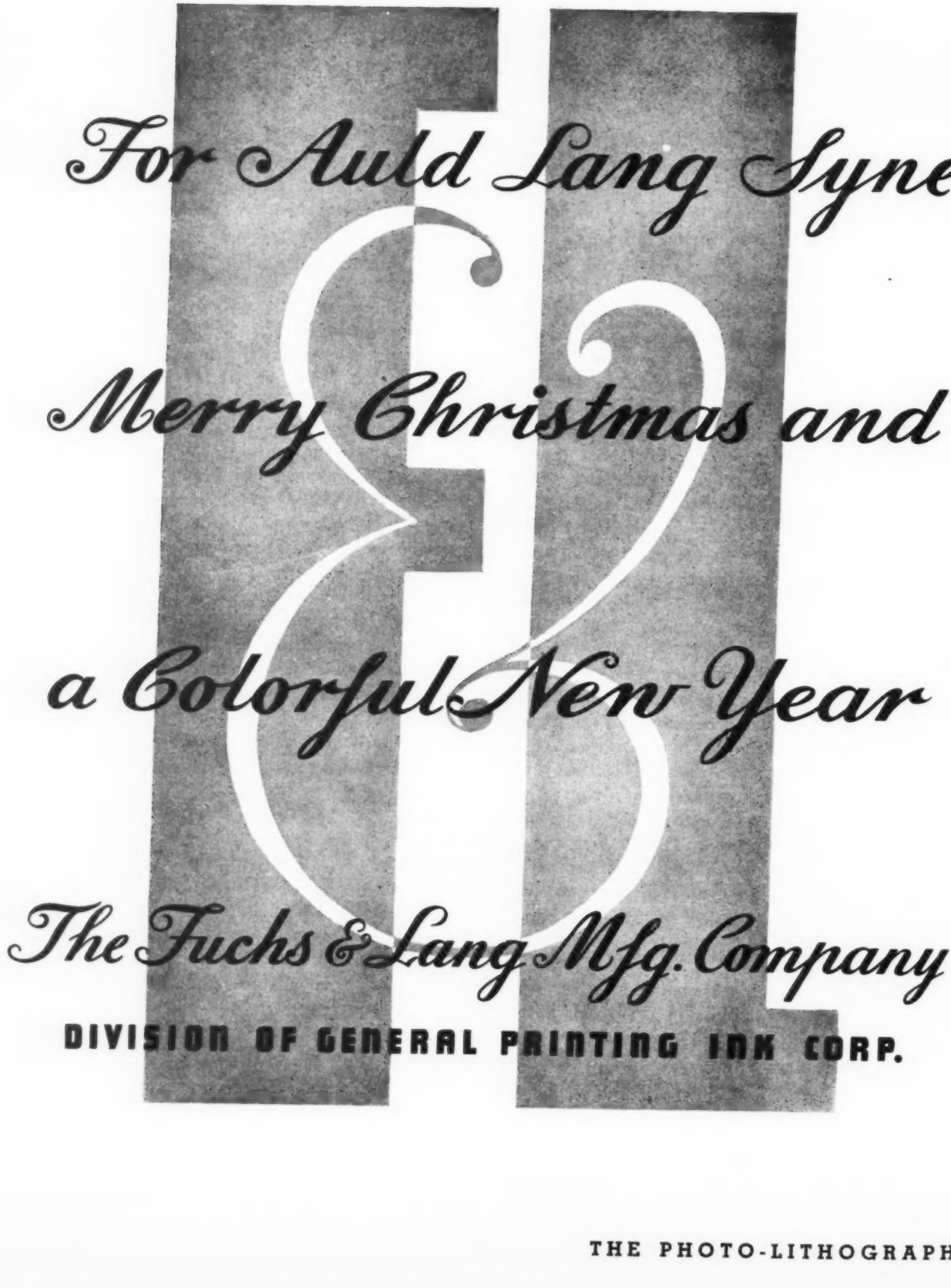
Labor requirements in a small shop call for a working knowledge of the various factors of production on the superintendent's part. Without that knowledge, an overloading of one of the branches may easily occur, toppling costs. Yet at the same time, a superintendent cannot be a magician, running the camera, plate-making room, and pressroom while at the same time taking care of the administrative details. Also, please remember this is still the age of specialization, and it is not the intent of the writer to sell the idea of the proficient three-in-one genius who runs camera, plate-making and press equipment flawlessly. It is generally agreed that it is manifestly impossible for the superintendent actually to produce work at press, camera, or bench, and yet supervise a shop properly.

In general, it may be said that the superintendent should possess sufficient mechanical experience to enable him to maintain ideal shop conditions, keep the equipment up to maximum operating conditions, and keep sanitary conditions prevalent in the shop under him.

The superintendent's practical knowledge is always put to the test in his elimination of wasteful practices. He must use this knowledge in plant and equipment layout. For illustration, more light is needed where the sheets come out of the press, on the press-plate and blanket, and therefore for that reason, that end of the press is put to the window wherever possible. Artists should have the north light wherever possible. This should be arranged even though the straight-line production scheme is disturbed, unless artificial light is always necessary. Then daylight lamps with their correct filters should be used. Uncurtained windows near stripping tables will make for increased time, and errors of judgment on jobs. Work should be laid out in advance for the operator of any equipment. Waiting time makes the mechanic impatient, and makes his production sheet look bad. He realizes this and frets over it. These are but some of the more glaring examples of the practical knowledge application.

Estimating also requires practical mechanical knowledge. Very often special estimates must be made on jobs that involve added operations, the scope of which can be determined only by the man in touch with production. At times it may be cheaper to produce a piece of work a certain way in one department; yet through this method increase time for another department. Consideration must be given to the factor of correlation with the work in other departments. Will it result in placing obstacles in the path of continued production in other departments if the job is handled thus? is a question that the superintendent must often answer. And there his trade knowledge must be applied.

Mechanical knowledge is hooked up with records and the planning of work. In the matter of production records, for illustration, men may get poor gradings through no fault of theirs Their work may be of such a calibre as to entail more than the average difficulty, all of which fails to show up on their production slip. The cold facts of "this much time" only appear. Familiarity with the mechanics of the work, again will enable the executive to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a Colorful New Year
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get the full benefits of the good mechanic's services for the concern, where ordinarily the man's service might have been dispensed with and lost to the firm.

The Superintendent's Administrative Needs

That brings us to records, so necessary and vital to the continuance of good efficient production. Records must and should be kept. Probably one of the most elementary and at the same time tremendously important forms of record is that showing the progress of the work on all and any jobs in production. Often part of the job is in production before the entire advertising campaign has been developed. "We'll be ahead that much." Then jobs are interleaved. "Let's stop that and go right ahead on this," is a common occurrence. For this reason alone, the progress chart is an absolute necessity. It must be kept up to date so that a glance at the chart or board will place the production stage of any job in the plant.

As in every case of record keeping, a tendency to overload or overdo that part of the administrative work may creep in. Therefore judgment must be exercised so that this, as well as its opposite, "the one man band" idea can be steered clear of. As in classroom work, the absence of the chief executive for any reasonable length of time should not necessitate the closing up or shutting down of activities. The self-running type of plant always brings returns, and the executive who creates that type of loyalty and cooperation is worth his weight in gold.

To assure a steady flow of work through the plant requires planning. Thorough planning brings gratifying returns. But the plans must be elastic. Delivery dates must be recognized. Certain factors must be borne in mind to schedule a job through the plant intelligently. These factors will be covered by instructions on the progress card. Total time necessary for operations on the entire job; the time the job entered production; and the time it is wanted, must be included. Cards may be of different colors so as to indicate the clear track signal, the next in importance, and so on. Some use a bright red for the extra special rush; white for the routine; and green for the ordinary rush. You see, the present order of things has added a few types of rush to the order of the day. Each department should have an individual schedule card, with jobs in and out, promises, order of sequence, etc., clearly noted thereon.

It is just as important to impart correctly the instructions for the voyage as it is to chart the voyage itself. Clear, concise instructions must accompany every job through the plant. These must be incorporated on the job ticket, with samples, roughs, and other information deemed pertinent to the work. Different establishments make use of various devices in this direction to best meet their requirements. The nature of the work will determine the best type of form.

The Photo-Lithographers Manual depicts some of the forms used in plants. Others may be secured through employers' associations. Such organizations as the Visible Records Company of Chicago have record forms that adapt themselves very nicely to litho shops. Then there are the wall charts or cards used in the machine industry that also apply to certain phases of our industry. But none of these are to be static in form. In any of this record work it will be found that additions and revamping of parts will be necessary from time to time. That is progress.

Under administration is included the inspection, reporting, and recording so necessary to the completion of the issued order. The order in this case is that of shop conduct or procedure. A check is imperative until the order is either fully complied with or is rescinded. It is only in this manner that discipline can be maintained.

Cost System Knowledge

Today, business is interested primarily in profits. Jobs will be secure only so long as there are profits. The executive can determine whether or not there will be profits, or why there are none, only definitely by performance. Records must be kept which will show the performance in time consumed, time lost, productive time, etc., so that computation may be made to establish actual costs as against estimated costs. These records will act as sign posts pointing a way to the elimination of lost time, whatever it may be. An educational program evolved from a study of the records should enable the superintendent to eliminate the leaks and obtain economy of time, material and equipment. Without records, everything would be guesswork, a poor basis upon which to conduct any scientific research and investigation. Factual, visual evidence in the form of records on time, materials, and all of the other factors of production only will result in a true analysis of the problem.

A modern cost-finding method includes the use of the cost system. Under this head comes a multitude of sins. Non-productive time in one shop is actual cost in another. When plate-graining is placed under non-productive time with roller and damper making, then it seems that the cost sheet is carried a bit far. One shop carries makeready as non-productive, while another calls it productive. Breakdowns are carried out arbitrarily sometimes to further nefarious schemes. Often it is pure ignorance. The cost sheet instrument can be fashioned to prove any point. Cost sheets and records have their place, despite the feelings of the owner who averred, "All I'm interested in is whether we wind up with enough to carry on next year. How or where I made it, doesn't interest me."

Leaks and the arrival at a fair selling price can be determined only by keeping shop records, time of camera, strip-ins, transferring, proving, plate-making, art work, run on the job, etc., delays and reasons, etc. This may be broken down further to suit the plant, always being mindful of the point of over-systemizing. Remember the old

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mistake, "If a little medicine is good, a whole lot is better." If enough powder to cover a dime is prescribed, it is harmful to use enough to cover ten pennies. An office force of clerical help, to two mechanics is poor cost accounting.

The superintendent must, however, be acquainted with the variable overhead items. He must have the records and control of power, heat, water, light, supplies, repair parts, etc., so as to find leaks at their source. Budgeting control records should be available to him. Department costs sheets must be kept to date for his constant and unrelenting observation, so that a true picture of production and the race between costs and budget be seen. Periodic checks must be made with an eye to revision to keep within budgetary limits. These and many other services come under the head of administration, the last factor in the duties of the superintendent.

There we have an extremely abbreviated picture of the ingredients of a portion of superintendency. The proportion in which they are mixed determines the kind of indigestion you'll get. It is hoped that an appreciation of the tasks of the superintendent has been developed by this series. Involved as they were, the surface has only been scratched. Volumes could be written under such a heading as we chose, and still leave much untold.

In conclusion, the words of Elbert Hubbard bear repetition:

"The man who is worthy of being a leader of men will never complain of the stupidity of his helpers, of the ingratitude of mankind, or the inappreciation of the public. These things are all a part of the great game of life, and to meet them and not go down before them in discouragement and defeat, is the final proof of power."

Suggested reading matter:

"Technique of Executive Control," Erwin Haskell Schell.

"Administrative Proficiency in Business," Erwin Haskell Schell.

"The Executive," Sam W. Reyburn

"Executive Ability," Sam W. Reyburn

"Psychology for Executives," Elliot Dunlap Smith

Letter No. I

In discussing the personnel question (this seems to have carried the most guns, for in questions it is referred to the most) one employer declares for the driver type of super. Baby them and they lay down, said he. "I know. A man must be driven to get the most out of him."

Answer No. I

Glad that was brought up. It reminds me of that old gag on horse treatment. A doctor invited out for a drive in a gig, objected to the whipping of the horse. "Horses need driving and whipping," remarked James, the driver, to the doctor. To which the doctor replied, "Don't irritate him; always soothe your horse. You'll do better without me. Let me down." Once on terra-firma, the doctor's view of the case was changed. "Now, James, touch him up. Never let a horse get the better of you. Touch him up, conquer him, don't spare him; and now I'll leave you to manage him—I'll walk back."

The driving suggestion is loaded with dynamite, and the good doctor knew it. That is true of animals and men. The day of the driver is gone. Yes even from the movies. It's a wasteful procedure. It arouses antagonism. Instead of enabling the worker to concentrate on the task in hand he is thinking up ways of getting even, or at least cussing you out beneath his breath. The loafer? He gets his from his fellow men. And then, too, it's up to you as the super or the employer to show him the best way. If after a few attempts, there is no response, either your stimulus is wrong or your time is wasted. Sometimes discharge is the only remedy. But driving, never.

Letter No. II

Superintendent asks: How can an employer retain the faith and confidence in the superintendent who uses the "Huddle" system of running the shop?

Answer No. II

The "Huddle" system involves the consultation of all the heads of departments, and in extreme cases, of all the employees in shop practices and policies.

When a cross section of a small part of the industry and the employer thereof is examined, the tremendous import of the question becomes apparent. Of course, the wide-awake employer realizes the long-time benefits of the "Let's get right at this, the customer is all out of them," or "What can be done to get this ready to meet the press in an hour's time?" type of executive.

That the bully type, "Get right at this. I want it right away," or the "Is this your last color?" (when it is known there are many more) disturbs and tends to lower loyalty, respect and production, is well recognized by students of human relations. But to some employers there still remains their ideal type of know-it-all super. It is that type the questioner apparently has to deal with, and he has my sympathy. I would say this is true. The employer will become aware of the value of the "Huddle" system before many more moons. That system applies all of the principles listed under personnel, in this series.

The McCandlish Lithograph Corporation of Philadelphia, has selected the following jury to judge the McCandlish Awards for 1938:

Professor Lucian Bernhard, famous European and American artist; L. Stanford Briggs, Vice President and Art Director, McCann-Erickson, Inc.; Charles T. Coiner, Vice President and Art Director, N. W. Ayer & Son; J. A. Donan, Advertising Manager, Standard Oil Company of New Jersey; and Leonard London, Art Director, Outdoor Advertising, Inc.

COLOR - What It Is and How It Should Be Used

An address delivered at the Annual Convention of the N. A. P. L. by

G. L. ERIKSON

Technical Director, Braden-Sutphin Ink Company, Cleveland, Ohio

THE subject of "Color" has been approached from so many different angles and has been discussed by people in so many different walks of life that for me to plunge into the whirlpool of color discussion at this time seems a bit like "fools rushing in where angels fear to tread." And yet in spite of all the literature being writtten today, there still seems to be an appalling lack of fundamental knowledge on this all-important subject among some of the printers and advertisers of the country today. Perhaps this is because it is almost impossible to describe in writing many of the sensations and impressions that we receive through our eyes. And because color is entirely dependent on our eyes for interpretation, I believe that a *visual demonstration* of the facts about color is the only method by which we can be taught these fundamental principles so necessary for us to know if we are to use color correctly. That is the reason for the presence of all the apparatus which you see assembled here.

Science has only scratched the surface a little in the study of color and much more work remains to be done in this fertile field. We do not fully understand just how our eyes function in the apparently simple process of seeing "black and white" and much more remains to be studied in connection with color vision, before we can know just how the eye operates in seeing the 30,000 or more shades of color distinguishable by the average human eye.

Your own lack of knowledge about color is best illustrated by attempting to define color —try to give a definition for color that would describe and explain color so that a child who had been blind since birth and had never seen color would understand. Color is indeed very difficult to define or describe. Color does not have the same meaning to different classes of people and to different individuals.

(1) *The chemist* considers color as pigment and dye, or as atoms and molecules combined in different ways.

(2) *The physicist* considers color as light or as radiant energy of various wave lengths and intensities.

(3) *The optician and biologist* consider color as a visual phenomenon or the result of projecting images through the lenses of the eyes and causing very complicated photo-chemical and physical reactions in the eye, optic nerve and brain.

(4) *The psychologist* considers color as a sensation of the mind and studies the various reactions produced by color when used in different ways.

(5) *The printer* perhaps considers color as a headache and indeed it may be a headache when it is improperly used in printing and advertising.

(6) *The dictionary* (Webster's Collegiate) defines color as "a property of visible phenomena distinct from form and from light and shade, depending on the effect of light of different wave lengths on the retina," etc. In simpler form color is a "visual sensation different from the sensation of form or shape and different from the sensation of light or shade." In other words, you see me first as a definite form or shape, and secondly in different shades of light and dark areas, and thirdly in different colors.

The literature on color includes thousands of books and magazine articles written by men and women in all walks of life. A great deal of the scientific literature is too technical for the average user of color and the rest of the literature is very contradictory and the student of color is left very much confused.

To review all the literature on the subject of color would require many years. The subject of colorimetry alone, or the measurement of color, has received a great deal of attention from scientists lately and much progress has been made along this line. Those interested in this phase of the subject may obtain authoritative information from the writings of Prof. Hardy of Massachusetts Institute of Technology, Dr. K. S. Gibson of the National Bureau of Standards, Dr. D. B. Judd, Dr. R. D. Nutting and many others.

To illustrate quickly the contradictory nature of much of the literature written about the *use* of color—it is only necessary to refer to the Bureau of Standards Letter Circular No. 351 which may be obtained free on request. This circular lists the results obtained by some eight or ten different researches into the subject of legibility of different color combinations and here we can see how little agreement there is in the literature on color. None of the investigators are agreed on the order in which color combinations show legibility.

In the miscellaneous literature about color, we are told that color reactions vary with our age, race, nationality, sex, seasons, locations, economic conditions, and personal characteristics. It is written that the East buys dark cars, while the West prefers light colored cars; the South and West prefer loud colors, but North and East prefer soft colors—Canada prefers the softer colors—Negroes prefer bright colors, the Mediterranean nations prefer warm colors. We are told that 10-cent toothbrushes sell best if they are red—and 25-cent toothbrushes if they are amber, and that our ideas change from childhood to maturity—children like bright colors and older people prefer the softer shades. Women like warmer and brighter colors than men of the same age; hence, the use of colors in cosmetics, rouge, lipstick, and nail polish. Young men buy the bright neckties; older men the darker shades. Athletes prefer red; intellectuals want blue.

From all this it would seem that our friend Al Sutphin—with his red tie—just forgot to grow up or else he just isn't one of the intellectuals.

It is claimed that colored highways help vision and that the new yellow sodium highway lighting reduces accidents. Publishers are told that "gray ink on yellow paper would reduce eyestrain and help preserve the reader's eyesight and make small newsprint far more legible." Schools are advised to use black chalk on yellow blackboards, and we have been told that green billiard tables should be changed to claret red, colored sails should be used instead of white, and colored paper should be used instead of white for more appeal, etc.

We are urged to try magenta lights in our dining rooms instead of cocktails; to use color in our basements and in our attics; color on our shoes and in our hair. In fact, some say everything should be colored. Some people feel that because a little color is useful, a lot of color would be more useful.

We all know that a little salt makes our food taste better, but too much salt can spoil its taste entirely. We also know that a number of poisons such as arsenic, strychnine and mercury are useful as medicines in small doses, but over-doses are likely to be fatal.

In the same manner—over-doses of color and the incorrect use of color in printing and advertising are likely to be not only poisonous, but actually fatal as far as results are concerned, and I intend to demonstrate this very clearly and show you examples of that kind of color use, in order to prove this point.

I do not intend to expound any new theory or criticize any of the existing theories on color, but simply point out a few of the fundamental principles and illustrate these visually, and then your own common sense will tell you how to apply this information in the use of color in your own case.

Amid all the confusion in the literature on color it is difficult to know where to start but it seems to me that there are only three main points to consider and a thorough understanding of all three will clearly point the way to the proper use of color.

First—The stimulus, or the cause, or the conditions which the eye interprets as color sensations.

Second—The reception and interpretation of these conditions.

Third—The effects produced by the color sensations.

The Cause of the Color Sensation

Going back to our dictionary definition, the cause of color is given as "the effect of light of different wave lengths on the retina." The stimulus then is light. *Without light there is no color.* By turning off the lights in this room the colors can not be seen. *(Demonstration.)*

If we use a red light or a blue light instead of white light, the colors in the room appear

very different to the eye—under a red light the reds, yellows, oranges, etc., all appear white and the blues and purples appear black, while with a blue light the reds and oranges appear black, and the blues seem white.

Evidently, then the white light under which we see color must be very different from the red and blue lights which only show these colored surfaces as black and white.

We all know that white light is a mixture of a large number of colored lights and perhaps we have all seen the rainbow or the spectrum produced by the breaking up of white light, but I intend to demonstrate this to you again, as in order to understand color it is very necessary that we think of white light as a mixture of colored lights, instead of just a different kind of light. *(Demonstration.)*

The large spectrum which is produced on the screen shows all of the different colored lights which make up the white light of the lantern and it can be divided into three main sections; the red end, the blue end and the green center, and in explaining the science of color I will talk a great deal about these three kinds of light.

Let us think of white light as being composed of these three kinds of light: red, green and blue.

When a red filter is used in the beam of white light which is broken up into the different colors, notice that the blue and green sections of the spectrum are absorbed and only the red light comes through. This is exactly what happens any time we see a red color. The blue and green light in our white light is absorbed by the pigment or dye and only the red rays are reflected back to the eye to produce the sensation of red. It makes no difference whether the color is absorbed in passing *through* the material such as in the case of the filter I am using and in the case of transparent colors and materials, or whether the color is absorbed at the surface as in opaque pigments and paints, etc. What we see is the light rays which are not absorbed.

In using a blue filter in the beam of white light, the red and green light is absorbed and only the blue rays pass through to the screen, and with a green filter, both red and blue ends of the spectrum are absorbed and only the green center rays pass through the filter to the screen.

These three sections of the spectrum correspond fairly well to the three lights which we are using in this demonstration and will be called primary lights during this discussion.

Let us first try to understand absorption and reflection of light and for this purpose I will use a black and white star mounted on a gray background. Using red light, the white star remains white and the black star is still black. With a blue light these two stars still retain their general appearance, and with a green light the same is true. Evidently then the white star reflects all three kinds of light and the black star absorbs all three kinds of light.

The white star will *reflect* nearly all of the white light which strikes it and the black star will *absorb* nearly all of the white light.

In using a red and blue star instead of white and black, we demonstrate selective absorption and reflection of light rays. Under a red light the red star reflects nearly all of the light and appears white because it is reflecting just as much light as the white star. The blue star on the other hand is absorbing all of the red light and appears black, because there is no blue light present to reflect. Under the blue light the reverse is true—the red appears black because it is absorbing the light, and the blue appears white because it is reflecting nearly all of the light.

Using both the red and blue lights, we have the red star reflecting the red light and absorbing the blue, while the blue star is reflecting the blue light and absorbing the red. Here we have selective absorption and reflection of light rays by pigments demonstrated in a manner which is easy to understand because we can see what is happening.

This selective absorption and reflection of light rays by pigments and dyes is the most common method of producing the different wave lengths of light which cause the color sensations in our eye, and is the only method which is of interest to the printing industry.

Many other methods can be used to produce these different light rays which give the color sensation, and most of these start with white light—refraction by means of prisms, diffraction by means of gratings, interferences in very thin films and polarization.

There is also a direct method of producing colored lights by causing certain gases and vapors to glow under the action of electric impulses. Examples of these are the mercury vapor light, the yellow sodium light and the neon lights and other gas filled lights in this class.

One more method of producing the color sensation in the eye is worthy of mention and this is by direct nerve stimulation such as by pressure or a sudden blow. Let someone hit you in the eye in a dark room and you will see both light and color.

We have seen white light broken up into the different colored lights of which it is composed, and now we will recombine these colored lights and produce white light. By using red, green and blue lights together on the screen in the proper proportion, a good quality of white light is produced. And now by subtracting or absorbing some of these colored lights by means of a block placed between the lights and the screen, a number of colors are produced.

Let me analyze this condition. The three lights are arranged so that as you face front the blue light is on your right, the red light in the middle and the green light on your left. The colored shadows produced are a yellow color on your left which is a shadow from the blue light, a peacock color in the center, the shadow from the red light, and a magenta or cerise color on your right, the shadow from the green light.

In other words, if we subtract the blue light from these three which produce white light, we have left a yellow color which is a mixture of the green and red lights. Subtracting the red light leaves green and blue light which makes the peacock color seen in the middle, and subtracting the green light leaves red and blue light which makes the magenta light. Now, if two of these blocks are moved closer together so that the yellow and magenta shadows will overlap, that subtracts both the blue and green lights and leaves only the red light. The blocks are so arranged that the three single lights appear at the top. The two-color light mixtures appear below these and the three-color white is on the bottom of the screen. If two of the blocks are moved together so that all of the light is absorbed, the result is, of course, a black shadow.

Here we have illustrated the additive mixing of the primary lights—red and green lights mix to give yellow light—red and blue lights mix to produce magenta light—and green and blue lights make the peacock blue—all three lights mix to produce the white.

The subtractive mixing of pigments is also illustrated on the screen. Starting with white light by subtracting one of the three lights, there remain the two-color light mixtures which represent the three pigment primaries, yellow, peacock and magenta. By mixing these pigment primaries, each one of which subtracts one of the three lights from the white, there are produced secondary pigment mixtures which subtract two kinds of light from the three-color white, and these pigment secondaries—red, green and blue—correspond to the light primaries as they each reflect only one of the three lights.

It is evident that the mixing of lights and the mixing of pigments are closely related, one being an additive process starting from darkness, adding the three lights until white is produced and the other process being a subtractive process, starting from white light, subtracting the same three lights until black is produced.

The mixing chart also illustrates this graphically with pigments. Yellow pigment absorbs the blue rays from white light and reflects the red and green. Peacock blue pigment absorbs the red ray from white light and reflects the green and blue. If yellow and peacock blue are mixed, each color retains its own light-absorbing properties and the mixture will reflect only green light, as the yellow absorbs the blue and the peacock blue absorbs the red. If magenta is now added to this mixture, this pigment absorbs the green ray and the result is absorption of all three lights or black.

In producing brilliant greens by mixing yellow and blue, it is therefore necessary that both the yellow and blue reflect a large amount of green ray and, therefore, greenish yellow such as primrose, and greenish blue such as peacock blue are necessary if a color mixture is desired which reflects a large amount of green light.

A purple blue which reflects no green ray will never give a green color on mixing with any shade of yellow. Neither will a reddish yellow or orange give a good green color on mixing with any shade of blue, because these mixtures will absorb all three kinds of light and give only dark grays or black.

The rules for the mixing of yellow and magenta to produce bright red and for mixing magenta and peacock to produce blue, follow the same line of reasoning.

Unfortunately, the primary pigments in common use for mixing and printing are never perfect in their light-absorbing and reflecting qualities and therefore it is necessary to adjust the shades of process printing inks to favor the particular subjects and colors being reproduced.

Reception of the Color Sensation

The eye is the only receiver we have to interpret the color sensation and it is well for us to consider the eye for a short time, not as an optical instrument of vision, because that is outside the scope of this demonstration on color, but to study its properties as a receiver of color sensations only.

It has been said that it is easy to build a better optical instrument than the human eye, but no one has yet been able to build a better eye. The eye as a receiver of color sensations is subject to a number of errors, or rather peculiarities which we should study carefully, in order to allow for these in our use of color.

Let us go back to the red and blue star with a red light for illumination. The red star now appears white, but actually it is red, as it reflects just as much red ray to the eye as it does when the blue light is turned on. The blue light contains very little red ray and therefore does not add any red reflection to the red star, but it simply furnishes a color contrast in the surroundings in which the red star appears much more brilliant. This is a very important property of the eye to remember, that colors are visible only by contrast or by comparison with other colors. Another important property is also illustrated, that of the inability of the eye to remember colors except by comparison with fixed standards.

Let us illustrate this further with the three lights, and the blocks. The center shadow, peacock blue, is produced by absorbing the red rays. If the red light is turned off from the entire screen, there is produced the same shade of peacock blue over the entire lower part of the screen, but it appears very much lighter, almost white because there is no true white for contrast or comparison until the red light is again turned on when contrast with the white brings out the full color of the peacock blue.

The same is true of the yellow and the magenta which appear very much lighter in color when the white background is removed, eliminating the contrast. The single color lights also appear very much lighter in the large area when the contrasting white background is removed.

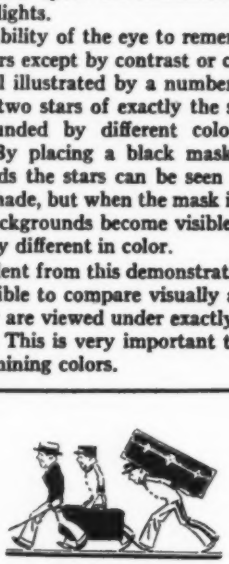
This same effect can also be demonstrated with the white lights of the room turned on while a color light is also focused on the screen, and the block in position. The shadow produced by the block from the red light appears blue-green in color.

In analyzing this condition, it should be noted that the screen is illuminated by both the room lights and the red light, and by cutting out the red light by means of this block the shadow spot is illuminated by only the room lights and is actually white instead of blue-green as it appears to our eyes. The reddish white of the screen appears white to the eye due to the greater total illumination and by subtracting the red rays from this apparent white, the effect to the eye is that of subtracting red rays from white light which leaves the blue-green or peacock color, but what is actually happening, is that the red ray is being subtracted from reddish white, leaving a pure white shadow, which is not recognized as such but appears as a peacock color because it is lower in total illumination than the reddish white surrounding it.

The blue light shows a shadow which appears yellow and the green light gives a shadow which appears magenta in color, both of which, however, are actually true whites, as these shadow spots are illuminated only by the room lights.

This inability of the eye to remember or to judge colors except by contrast or comparison is also well illustrated by a number of charts on which two stars of exactly the same color are surrounded by different colored backgrounds. By placing a black mask over the backgrounds the stars can be seen as exactly the same shade, but when the mask is removed and the backgrounds become visible, the stars appear very different in color.

It is evident from this demonstration that it is not possible to compare visually any colors unless they are viewed under exactly the same conditions. This is very important to remember in examining colors.



LINES of manufactured articles have grown so that in many organizations it is impossible for the salesman to carry more than a representative few — unless he hires a squad of baggage carriers. Under such conditions color reproductions are worth more than their weight in gold.

Compactly contained within the covers of a manual, catalog, or portfolio, realistic, colored reproductions enable him to cover more ground, interest more people, at less waste of time and money than would otherwise be possible.

The help of color, used this way, can hardly be appraised in dollars and cents.

There are several other properties of the eye as a receiver of the color sensation which are worthy of mention, but time does not permit going into greater detail here.

A number of very common optical illusions or errors which the eye is subject to in black and white can also be demonstrated by charts.

One very important property which I will demonstrate comes under the heading—

The Effects Produced by the Color Sensation

Color fatigue in the eye has received very little attention in all the studies and researches on color, and I consider that as one of the most important factors in governing the use of color in printing and advertising.

Color fatigue is easily demonstrated by staring steadily at the red star appearing on the screen for about 30 seconds. Notice that as you look steadily at this red star the color seems to get lighter in shade, and notice also that the eyes become tired, and that it is difficult to keep looking steadily at the red star. The eyes become very tired, and a continued exposure would cause drowsiness and even a headache due to the fatigue in the eye. When the red star is removed the complementary blue-green fatigue image appears. This is caused by the attempt of the eye to neutralize and relieve the strain caused by the long exposure to this brilliant color. The fatigue image will follow your vision for many seconds and wherever you look, the complementary star will appear.

It is true that red is a harsh color to the eyes, but this same condition will be produced by all other strong colors: green, yellow and blue all producing strong fatigue images in the complementary colors.

It is not necessary to have strong lights and a darkened room to produce these fatigue images. By looking steadily at a circle of magenta, a square of green or triangle of peacock blue on a white background, the corresponding complementary fatigue images are produced when the objects are removed.

If your eye becomes color-fatigued at a distance of 30 or 40 feet, consider what happens when a page of type on a bright red background is brought up to within reading distance for a long time.

On the sample being shown, the type is a bold face, easily read type and yet about six lines of reading will cause the type to blur and move in front of the eyes. Another dozen lines will cause terrible strain and headache, and a whole page of this reading would perhaps send the reader to a hospital or an asylum, unless he had an unusually strong constitution. One thing is sure, and that is—that very little will be remembered after reading this page.

This is a very extreme example of course, but no more extreme than some of the printed matter distributed in the last few months. The samples being shown represent the work of not only amateurs, but of some of the largest manufacturers in the country, whose printing has been designed by some of the leading advertising agencies in the country.

To hand a prospect a copy of full page reading matter on a bright colored background is about as effective as tapping him on the head with a club after giving him your ad, so that he will be unable to read and remember your message.

If the advertising men who use bright colored backgrounds for type pages such as these, would read their copy on the finished job, they would realize how impossible it is for the reader to get the messages. Or perhaps they would think that they were very tired and needed rest, or that their eyes were going bad, or that they needed new glasses, or that they had too many drinks, or give some other reason for their own inability to wade through the reading matter, instead of realizing that the trouble they were having was due to the terrible color fatigue in the eye caused by the bright colored background. Actually, ad men seldom read their copy on the finished job, because they already know it so well from careful study while it was on a typewritten sheet or in some other easy-to-read form.

I have never met a person who could remember any article they had ever read on a *Reader's Digest* cover. In fact, most people will tell you they never finished any article on the *Digest* cover. They usually get tired when reading the cover and lay it aside, and just don't go back to the cover, perhaps even thinking that it is uninteresting because they don't remember what little they did read. In the case

of the red and blue covers, the contrast is poor and legibility is bad because of that. But on the yellow covers, the contrast is very good and legibility is also good for a few seconds until color fatigue sets in, after which it is almost impossible to continue reading. I have noticed that the August, 1937, issue which is just out, has a light gray cover which will allow the readers to enjoy the articles on the cover of this issue.

As manufacturers of printing ink, we certainly enjoy seeing these large solid areas of color. They require a lot of ink, but when these large areas of color are used as backgrounds for reading matter which requires a long time to read, it is almost certain that the message will be lost due to color fatigue, and the advertisers may decide to use radio or some other method of advertising, as this kind of printing does not get results for him. I would much prefer to see the type matter without any bright colored background, even though it does use less ink for each job, because there would be more chance of results from the printing, and that would mean more printing later on.

The Use of Color

A great deal of stress has been laid on what not to do with color in this discussion so far. There are, however, a great many important uses for color in printing and advertising and some of these should be mentioned in order to complete this discussion.

Color is very useful in attracting attention. Color stimulates the eye for short periods. However, a long exposure actually distracts the attention and, instead of continuing to stimulate, will cause fatigue and drowsiness. Use large areas of color in poster effects and on covers to attract and stimulate, but not to hold attention and cause fatigue.

Many conditions should govern the use of color. The nature of the job, the article being advertised, the kind of appeal, the people being appealed to, the personal preferences of certain classes, etc., should all be considered in planning color work. Dignity and simplicity will attract some classes, while flash and complexity will appeal to others. Color can affect a man's personality and mental outlook. Color can lower sales resistance, can make us feel gay or gloomy.

The association of ideas with colors is an important consideration in the selection of color combinations. Our reactions to colors are determined by heredity and by habit. We always associate red and orange with heat and therefore these colors are used in stove illustrations even though few stoves are actually red in color. Blue has always been associated with cold and hence its use in most refrigerator advertising, although refrigerators are usually white in color.

YELLOW is sometimes the color of glory, stimulation, cheerfulness and prosperity, and is often used to suggest cowardice, cheapness, sickness, indecency, decay, deceit, etc. In China yellow has much meaning in religion.

ORANGE is the color of glory, heat, laughter, harvest, plenty, happiness, warmth, riches, gold and life.

RED is an advancing color and suggests heat, war, blood, sacrifice, love, passion, patriotism, courage, danger, anarchy, carnage, etc. A red room seems smaller than it actually is. Chinese consider red as the color of health and protection.

MAGENTA has been considered a relaxing color.

GREEN is the color of safety, victory, nature and also of sickness.

VIOLET and PURPLE are considered the colors of melancholy, also of heroism, magnificence, royalty, passion, suffering, sacrifice, composure, calmness, riches and mystery.

BLUE is the color of truth, peace, divinity, happiness. A blue room always seems larger than it actually is. Blue is a receding color and is restful and cool. In Mexico, blue is the color of mourning. In China, blue is the color of death. Don't make the mistake of printing a menu for a Chinese restaurant or night club in a blue color.

WHITE is the color of purity and innocence. In China, white is the color of mourning. An oil company in China is said to have paid dearly for disregarding this association and painting their gas stations white.

GRAY is the color of age, maturity and character.

BLACK is the color of tragedy, death, silence, and mourning.

The subject of "color harmony" and the use of color pictorially is an art and a study in itself. Individual tastes seem to have a great deal to do with the studies in this subject.

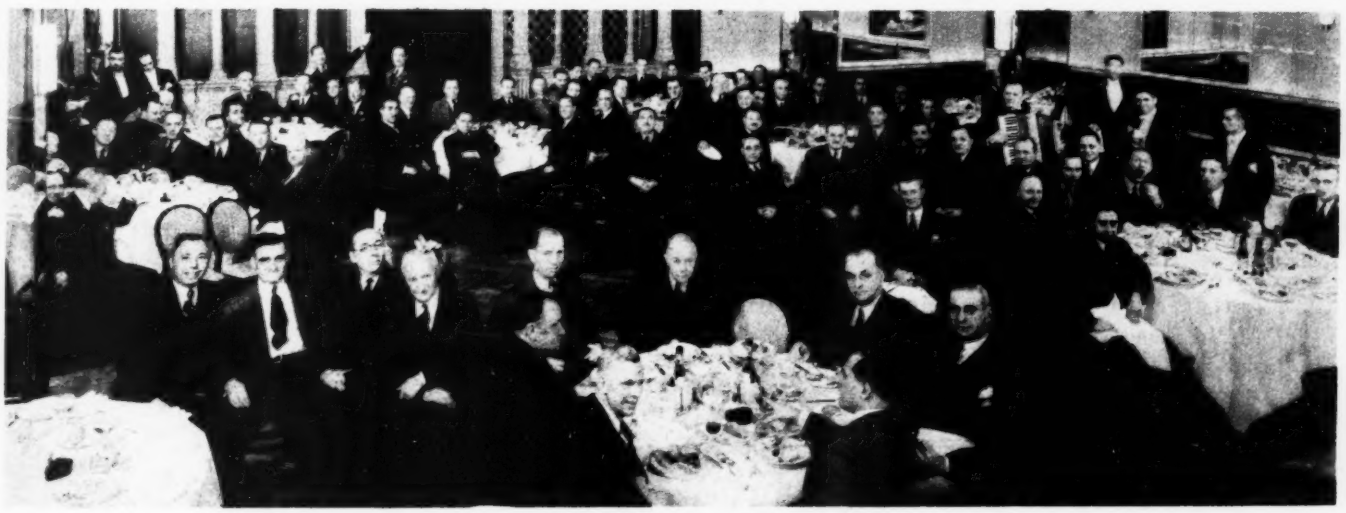
Much has been written on this subject which is very useful. A number of methods of using color to produce harmony have been suggested and some of these seem quite contradictory, but here again, the purpose must be considered first. Color harmonies may be produced in monochromes, neighboring or analagous colors, and in complementary combinations and in many other ways.

Perhaps you have all seen the illustration of balanced and unbalanced color in the "Grammar of Color" published by the Strathmore Paper Company. The enlarged chart will show clearly the difference in appearance of the picture when a balanced or unbalanced combination of colors is used.

The rotating disk as described in this book is useful for determining whether color combinations are balanced or not. A balanced combination when rotated will produce a neutral gray.

In general, the use of color should be governed by a great deal of common sense, keeping in mind the fundamental principles which we have tried to explain in this demonstration and then the results cannot help but be much more gratifying than the haphazard use of color without any science or sense or system as a guide.

Good color combinations are not the result of guess or accident. They are the product of careful study and experience.



ALL IN FOCUS, WITH NO HALATIONS

were the more than a hundred members of the Litho Club, New York, after an Italian dinner held recently at Hotel Ambassador. The occasion was devoted to merriment and entertainment. Only good food, drink, and witty quips (no motions or resolutions) were passed.

ADENA OFFSET PAPER

WOVE OR LAID FINISH

Adena is ready to run because of Chillicothe's famous Dual control. This permits putting it on the press right from the case or skid. Adena is one offset paper that sets off any printing or lithographing job.

PRICED FOR QUALITY RUNS

SAVE MONEY BY SHIPPING VIA MIAMI VALLEY SHIPPERS' ASSOCIATION

NOTE! Adena is tub-sized . . . lies flat . . . will not wrinkle . . . has no fuzz or lint.

Makers of Quality Offset, Lithograph and Book Papers

THE CHILLICOTHE PAPER COMPANY

Executive Offices and Mills: CHILLICOTHE, O.

Eastern Office: New York, N. Y. 41 Park Row

SALES OFFICES

Pacific Coast Office: Los Angeles, Calif. 1003 N. Main St.

CHILLICOTHE—a buy-word for high grade papers

Fuchs & Lang Make Important Contribution

FUCHS & LANG MANUFACTURING COMPANY, New York, have announced a new line of Hard-Tex Metal Lithographing Inks which, according to the claims made for them in a recently published folder, should prove of great help in eliminating many of the ink troubles that have plagued metal lithographers for years.

These new inks are the outcome of years of careful planning and research by Fuchs & Lang, followed by many months of practical production tests in average press-rooms where their performance has been checked under most exacting conditions.

The following claims for these new inks are made by Fuchs & Lang:

They will adhere firmly to the metal whether it is sized or not.

When properly baked they make possible the flat stacking of sheets without the danger of sticking.

When baked under proper conditions, which require shorter oven time and lower temperatures, they are much harder and their colors are less affected than is usually the case.

Their non-porous surfaces will materially reduce the amount of finishing varnish necessary to obtain a well-varnished job.

Whether applied to sized or unsized metals, they result in much better adhesion. They will adhere firmly to any type of coated surface, binding with it to form a single substance.

In addition to these qualities, Hard-Tex Inks, according to the claims of Fuchs & Lang, have unusual working properties, print sharp and clean, trap well, do not dry on press, and create no unusual wear on plates, blankets, and rollers.

Thank You, Sir!

One photo-lithographer, who appreciates the value of the editorial content of The Photo-Lithographer, writes: ". . . You are doing a good educational job. When The Photo-Lithographer arrives here we read it, then carefully tear out all of the pages and files the articles by subject.

"Please enter our subscriptions for six of our Key men . . ."

This might be a good idea for other subscribers—a subscription for every Key man in office and plant.

The Washington Situation

By LOUIS B. MONTFORT

FROM time to time this office will send out what the undersigned believes is, as of the date of the release, the consensus of opinion here in Washington upon matters of interest to the industry.

Your general counsel will also be glad to secure information upon any special matter upon request from any member of the industry.

Generally

1. Evidence of Administration intent to curtail expenditures, to remove some taxation inequities, and to stimulate private enterprise. Most observers expect to see real efforts in this direction during the new few months though at present only general outlines have been developed. Emphasis on aiding small business, private housing and utility construction is expected.

2. Indications that during the summer recess the Congressional disposition to inquire independently and more deeply into legislative proposals has grown materially. However, until the session is well developed neither participants nor bystanders will be able to get an accurate measure of the extent to which this sentiment has grown.

3. All legislation left over from last session continues alive for the special as well as the regular session.

4. A number of industries report substantial falling off in volume (orders) and break in prices dating from July 1, 1937, but especially in months of October and November, prospects not encouraging, basis economic and psychological and not political.

Capital Gains Tax

1. Permit the taxpayer to segregate capital gains into a separate class of income if desired.

2. If included as regular income, gains would be 100% taxable if obtained during the first year; thereafter the taxable portion would decline 2% a month during the second year (down to 76%); and 1% a month thereafter to the end of the fifth year (being then 40% taxable).

3. If segregated, the gains would be 100% taxable but at a declining rate: 30% in second year; 25% at end of third year; 20% fourth year and about 16% in fifth year.

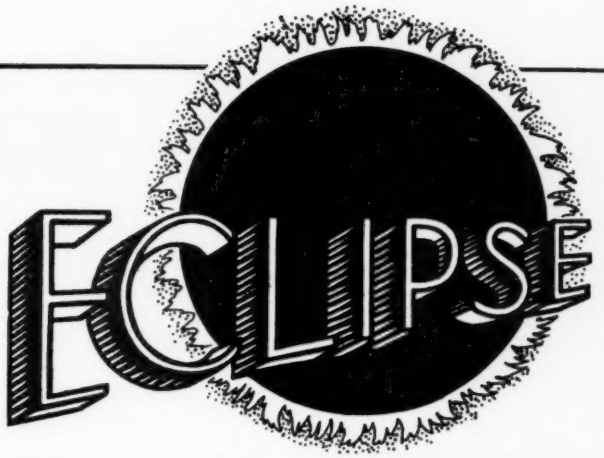
4. Permit carry-over of losses to offset gains in the next succeeding year.

Other Taxes

The Ways and Means Sub-Committee also has discussed and has under advisement proposals for discontinuance of capital stock and excess profits taxes, and for increasing the rate on intercorporate dividends.

Wages and Hours

Action special session very doubtful. South against, farmers against, some labor against. Ultimately there will be a Wage and Hour Law.



Deep-Set BLACK

"sets well" with most lithographers because it is made expressly for deep-etched plates.

So opaque
So pitch-black

So precisely the "just-right" combination of concentrated pigment, ground to the finest degree, with special vehicle and varnish

That—
It not only prints unusually lustrous, sharp, and clean to enhance the appearance of black-on-white, but serves by its intensity and absolute opacity to heighten the effect of color, whether of ink or paper.

The best results from Eclipse will come from use of a good quality paper but so strong is its blackness that even cheap white papers look whiter, and of better quality, when lithographed with Eclipse.

Eclipse is only one of the high-quality offset and letter-press inks we manufacture, both in black and colors.

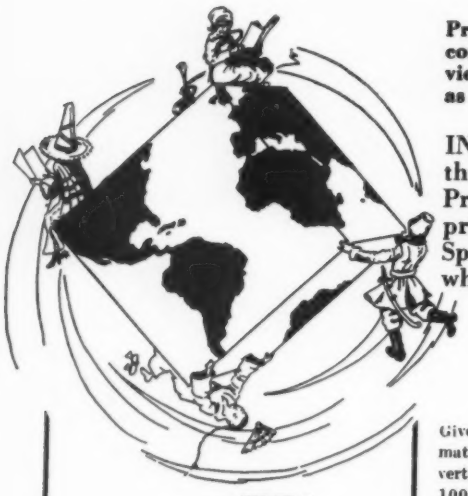
Try Eclipse on that next job—especially if it is for a very critical customer!

GAETJENS, BERGER & WIRTH, INC.

Gair Bldg., 35 York St., Brooklyn, N. Y.
538 South Clark Street, Chicago, Ill.

IDEAS FROM THE FOUR CORNERS OF THE EARTH

For Creative Offset Business



Printed Ideas and the Wherewith sells more creative printing, thereby reducing price competition and more firmly establishes the reputation of the firm from a good will viewpoint. To the offset company who is desirous of such a standing we have a service as important as the offset presses.

IN THREE DIVISIONS—Printing Ideas and the Wherewith is arranged in three distinct parts all interlocking to make the plan more usable for the Printer: *First:* The Guide Book—Spiral Bound—96 Pages—Page Size 18"x12" printed in two and three colors. *Second:* The Promotion Idea Supplement—Spiral Bound 54 Pages 9"x12". *Third:* Five Specially designed desk drawer wherewith location files.

ALL ILLUSTRATIONS. Ideas and Examples are indexed and cross indexed for ready reference and immediate use.

IDEA SUPPLEMENT

Every one who has to do with the creation or production of advertising and printing can benefit by this collection of Promotion Ideas and Copy Suggestions. Suggested with each are appropriate sketches, cut-up sheets and matrices immediately available. A few high spots of the Supplement are—32 Holiday and Event Copy Ideas covering the entire year—16 Prestige Building Institutional Copy Suggestions—32 Early Bird Copy and Layout Suggestions—60 Classified Advertising Captions—25 Printing Promotion Ideas — 48 Advertising Promotion Ideas—30 Combination News and Advertising Promotion Ideas. Ideas for House Organs—Classifying Type into Six Divisions accompanied with appropriate Sketch Suggestions.

THE GUIDE BOOK

Gives the Printer over 2000 individual sketches and matrices designed to arouse reader interest from an advertising and printing angle. It further illustrates over 1000 actual examples of the use of these illustrations for local advertising and printing. A few of the subjects illustrated are—Proper Space Divisions and Good Proportions—Marginal Spacing—Model Layouts—Sketch Effects—Sport Advertising and Layouts—23 Illustrated Folders—3 Self Clip Folders—House Organ Layouts and Editorials—Two and Three Color Effects—24 Types of Envelopes—Color in Envelopes—Simple Cut Outs and Slot Cuts—Post Card—Calendar and Blotter Ideas—Yearly Campaigns by the Week—Illustrated Letters and Letterheads—Printed Tags—Embellishing the Coupon—Social, Lodge and Order Advertising—Use of Silhouettes—Interchangeable Borders—5 Modern Hand Lettered Alphabets.

THE LOCATION FILES

Additional proof white cut-up sheets of all the illustrations are printed in size to fit a regular office file or desk drawer. Cut-up pages and matrices are arranged to correspond with the printed pages and numbered accordingly.

Files Are Indexed By Months and General

This permits for immediate location and use of your cut up pages or matrices without loss of time. These files act as a tickler on timely promotions and a permanent file for additional advertising ideas.

Illustrations on the right show designs much reduced in size taken from the Idea Supplement.

DISPLAY CREATORS

110 West 40th St. [Room 210] New York, N. Y.

Please send me further particulars and your 8 pages folder on Printing Ideas and the Wherewith.

Name .....

Address .....

☐ I can use cut-up sheets only. ☐ I can use mats and cut-up sheets. (Please check material required).

National Process Exhibit Attracts Many

The display by National Process Company, New York, including "Faithful Reproductions" of the work of famous artists such as Van Loon, Freeman, Magargee, and Reynolds, also samples of Duotone, Napconstruction, and highway maps, has aroused so much interest that, at the request of many people, it is being continued beyond the scheduled closing date, in the Roger Smith Gallery, 41st Street and Madison Avenue, New York.

Merck & Co. Now Distributing New Catalog

THE two illustrations in this column are taken from a number of photographic subjects that help to give "human interest" to the latest catalog now being distributed by Merck & Co., Inc., who are well-known in the graphic arts for the high quality of their chemicals.

Merck & Co. will be glad to send one of the catalogs to any photo-lithographer or other legitimate user of graphic arts chemicals. Requests should be addressed to their main office—Rahway, N. J.

WHITE WHISPERS

BLACK TALKS *but* TRUMP BLACK *is a Salesman*

TRUMP BLACK emphasizes every point with dominating insistance. It offers brilliant contrasts of high light and shadow; subtle shading in the middle tones. That's why Trump Black sells. It never mumbles. It talks out loud and gets each point across. Trump Black is a star salesman; a winner as its name implies.

For type, linework or halftones, Trump Black is unexcelled. Devised by a staff of expert chemists with years of experience in the manufacture of litho inks; it is guaranteed to give satisfaction.

R. S. Williams Co.

INCORPORATED

Fine Litho and Printing Inks

257-65 West 17th Street, New York

VALLEY OFFSET

● A 100 per cent OFFSET with every feature

● VALLEY OFFSET will not pick, fuzz or lint

The SORG PAPER CO.

NEW YORK: 1111 CHANIN BLDG. 122 E. 42ND ST.

MIDDLETOWN, O.

CHICAGO: DAILY NEWS BLDG. 400 W. MADISON

Incorporated 1916

THE PIONEER PLATE GRAINERS IN AMERICA

Reliability Backed by a Desire to Please

IMPORTANT ANNOUNCEMENT TO MULTILITH OWNERS

We are pleased to announce to the trade that a new Department has been added to our already large graining plant to take care of your requirements in the Regraining of your MULTILITH PLATES.

ALL OUR PLATES ARE MARBLE GRAINED

WHEN WE SAY MARBLE GRAINED WE MEAN JUST THAT

They may cost a little more BUT what a DIFFERENCE. A trial order will convince you of their merits.

Address your inquirtes to

MULTILITH DEP'T, 45 ROSE ST., NEW YORK CITY

IF PLATE RELIABILITY IS WHAT YOU ARE LOOKING FOR – THAT'S US.

PHONES
BEekman
3-4531-4542

Reliable Lithographic Plate Co., Inc.

17-27 Vanderwater St. & 45 Rose St., New York City

Award to Goudy Commemorated in Lanston Brochure

LANSTON Monotype Machine Company, Philadelphia, have published a beautifully designed brochure commemorating the presentation to their art director, Frederic W. Goudy, of an award of honor by the Ulster-Irish Society of New York, "for notable service to the Nation."

The brochure, which is printed from Monotype Goudy Village type, designed by Mr. Goudy, contains the presentation address of the Honorable Frances Perkins, Secretary of Labor, the address of acceptance by Mr. Goudy, and an appreciation by Henry W. Kent, secretary of the Metropolitan Museum of Art.

Mr. Goudy at the age of 72 is now working on his 104th type design.

Any reader of THE PHOTO-LITHOGRAPHER desiring a copy of the brochure can obtain it by writing to Lanston Monotype Machine Company, 24th at Locust Street, Philadelphia, Pa.

New Douthitt Catalog Now Being Distributed

The Douthitt Diaphragm Control, a precision instrument attached to the lens and camera to unite in perfect balance all the optical factors that enter into the production of halftone negatives, is one of many interesting items shown in the 1938 catalog of graphic arts machinery, equipment, and supplies, issued by The Douthitt Corporation, Detroit, Mich.

Also shown and completely described are flash stops, camera scales, separation gauges, vacuum printing frames of several types, copy boards, stripping tables, filtering stands, process lenses, prisms, and reversing mirrors, and a number of other items to contribute to efficiency in the graphic arts.

Even Chinese Can Be Set on the Vari-Typer

Over fifty of the most popular type fonts used in Varitypography are shown in a new catalog of type fonts issued by Ralph C. Coxhead Corporation, New York.

The fonts shown—and they represent only part of those available for use on Hammond, Vari-Typer, and Coxhead writing machines—include type faces for almost every conceivable need.

Among the English fonts for reproduction of ordinary copy are faces such as Caslon Old Style, a number of gothics and italics, including a backslant italic, and several attractive script faces. In addition there are numerous fonts for special work, including characters for astrological, chemical, medical, tariff, and library work.

Foreign languages are well represented. There are Vari-Typer fonts of Hebrew, International Phonetic, Japanese, Arabian, Irish Gaelic, German, Armenian, and even Chinese.

The point sizes run from six to fourteen point.

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who can make high grade negatives, positives, also press plates, who would like to connect with a Lithographer having the latest up-to-date equipment, and is contemplating discontinuing the Camera Department.

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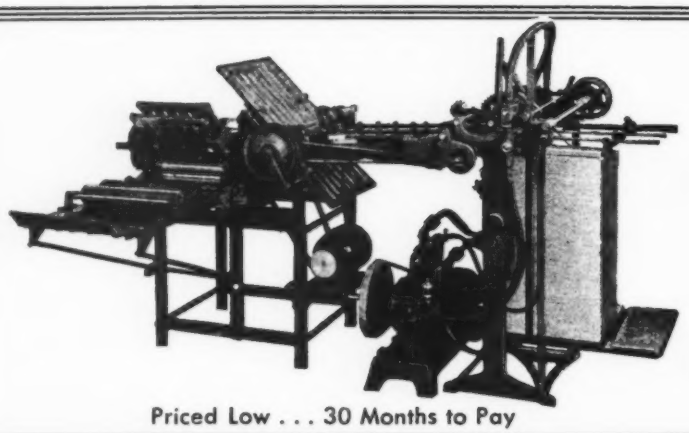

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Studies in Sales Management

(*Continued from page 31*)

electros of the pages were not available, could be more economically reproduced by his method. No new composition, art work, etc. were needed—only a specimen of the book, itself.

But he was not controlled nor directed. So he wasted months of his time. These were precious hours which might have been more resultful.

Hundreds of other cases could be cited. Pitiful instances of lack of sales management. Evidence in abundance to prove that salesmen's activities must be controlled if the maximum of profitable business is to be secured. Adding men and more men is not the remedy for more *profitable* business. It is possible to get more out of the men you employ, so that the business and the salesmen both benefit. Augmenting a sales staff is all right when done right.

This, then, is the initial installment of a series of articles on sales management. Subsequent articles will go fully into all the principles of the subject. Meanwhile, here is a tip for salesmen: *Do not think that rigid and rightful supervision of your activities hampers you and only indicates a show of tyrannical authority. Accept such supervision gratefully and cooperate wholeheartedly. And, by all means, where such supervision is lacking, discuss any plans you have in mind with the boss. He can at least steer you straight and give you helpful information and assistance.*

Less Dirt, More Light

(*Continued from page 14*)

Another practice favored in a great many working quarters is the use of a rag or cloth towel by the operator. While this towel is clean it serves its purpose well, but after being used several times it becomes saturated with the chemicals removed from the hands. These accumulate and form a danger point. The use of paper towels can be highly recommended for, after being used once, all the evil goes with them into the waste-can.

With further reference to the illumination of the dark-room or developing room, do not depend for personal convenience and the safety of sensitized material on colored lamps available from the dime store. This is false economy! In the first place they are anything but "safe" lights; secondly, they create eye fatigue; and, thirdly, they are deceiving during development because of imperfections due to the intensity of the filament in the bulb. The correct and only way is the adoption of a regular dark-room lamp giving indirect illumination with the proper dark-room filter recommended for the material being used.

In living up to the simple rules given, you will find that a great many of your troubles will vanish. Time does not permit me to go into the entire developing procedure in detail.

I sincerely trust, however, that this short outline has been of interest and will be of service to all of you.

4

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NEW INK CLEANER FOR SYNTHETIC ROLLERS

WITH the increasing use of rubber and synthetic press rollers has come a demand for a suitable cleaner to properly remove quick-drying inks and varnishes from the surface of such rollers. In the commercial and specialty branches of the printing industry this problem has become more serious by the steadily increasing use of high gloss inks, overprint varnishes, "non-scratch" types of black ink, and other rapid-drying inks of this group.

Quick-drying inks have a tendency not only to cake upon the surface of rubber and synthetic rollers, but also to become too sticky or tacky during long runs. These difficulties are due mainly to the fact that both rubber and synthetic makes of rollers have a greater affinity for high gloss varnish types of ink than regular composition rollers. The problem is not solved by the use of a common cleaning fluid and severe rubbing. Too much friction is injurious to any kind of inking roller, and some solvents may damage the surface of rollers to an extent beyond repair.

Ever since these ink troubles were recognized, the manufacturers of rubber and synthetic rollers have been working to discover a good cleaning fluid that would be capable of softening dried gloss ink on rollers so that it could be easily removed. After many months of experimentation, the desired kind of cleaner has been perfected by the Fergusson Laboratories, Drexel Building, Philadelphia, Pa. It is known as AFCO Ink-Zip. This company has been in business for 82 years, and is manufacturing many other cleaning products.

This new cleaner is especially adapted to removing dried and tacky black or colored inks from rubber or synthetic rollers. It has been developed with the important characteristic of slow evaporation, thus allowing the pressman a reasonable time for applying the fluid and keeping evaporation loss down to the minimum. It is claimed by the Fergusson Laboratories that the Ink-Zip will not disintegrate or swell rubber or synthetic rollers, and regardless of the age of dried ink on any of these rollers, the cleaner will readily remove it.

Working rapidly, this cleaner has such solvent power that the user must keep turning new surfaces of the cleaning rag to the roller for a clean wash-up. Otherwise, the soiled rag would merely spread the saturated solution of ink on the roller. The cleaning fluid is non-poisonous, and contains no benzol or other coal tar hydro-carbons.

Another definite use for this cleaner is in removing dried ink images from the surface of rubber blanket cylinders on rotary offset presses. This cleaning includes dried impressions in high gloss ink, "non-scratch" ink, or any

other type of quick-drying ink. The surfce of the rubber blanket is left entirely clean and smooth, ready for new offset work.

It is also suitable for washing ink from any of the various makes of composition rollers, ink distributing plates, and fountains. It is supplied in cans from 1 to 55 gallons capacity.

Developed on the findings of extensive research work in the printing and lithographing industries, conducted by Gus A. Vasel, for many years manager of the Philadelphia plant of the Ault & Wiborg Company, manufacturers of printing inks, this cleaner should prove very useful both to lithographers and letterpress printers.

American Label Company Establishes Subsidiary

THE American Label Company has announced an affiliate, General Lithographic Corporation, with offices and plant at 216 West 18th Street, New York. General will have the following officers in charge:

Robert P. Schambach, President and Treasurer; William H. Scoble, Vice-President; John F. McKenna, Vice-President and Sales Manager; William Quortrup, Vice-President; William N. Irish, Vice-President; Celia Lehman, Secretary.

One of the country's leading lithographic houses for more than fifty years, The American Label Company has always produced general lithographic material. Its varied work in this broad field has made the name, "The American Label Co.," no longer truly descriptive of the scope of the company's service. Because of this, the General Lithographic Corporation has been established.

The service and creative staffs, as well as the personnel of the press room and other departments, will remain the same.

THREE REASONS WHY

every one who sells to lithographers should advertise in The Photo-Lithographer.

1. It is thoroughly read both by the men who buy — in the office, and by the men who have important influence in the matter of what should be bought — in the shop. They appreciate its instructive and educational editorial content covering all phases of photo-lithography.

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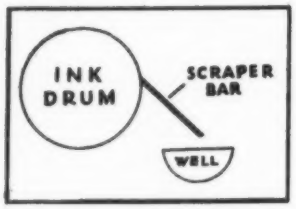

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SAFETY IN NUMBERS

By FRED E. KUNKEL

"WHEN the depression hit us we had three big customers and some few small ones," explained Major Wallace Kirby of the Kirby Lithograph Company in Washington, D. C. "Then when their business crashed ours crashed with it. Volume suddenly dropped to its lowest ebb in history. Something had to be done about it and done quickly. So we started hitting the ball and hitting it hard. Our salesmen became very active. We put them out on the road. And we stepped out of Washington for a lot of our business which heretofore had been mostly confined to the city limits.

"Our salesmen would first make the contact by mail to reduce sales resistance by telling prospects something about ourselves in advance of the call. Then they would go out and make the personal follow-up and keep after it, as a result of which we were able to get business. And looking back now it is really surprising how quickly we recovered from the shock.

"The depression taught us a very valuable lesson. Dealing with many customers, we find now, is much better and far safer than having a few big customers dominating our plant. They really own it, you don't. Giving you so much business, they think they own the shop and they want all of their work given priority.

"Of course they pay their bills, and pay them promptly, but you cannot build any further than they allow you to build. If you have many small customers you are much safer, provided you watch your credit more closely, because you can soon stack up a lot of money if you cannot collect.

"Our policy has been to seek safety in numbers rather than to carry several big accounts that utilize all of our equipment. We decided we would be much better off if we got many accounts, which we have been quite successful in doing.

"We think that is the policy for every small shop to follow. I know of one shop which still gets eighty per cent of their work from one company.

"Of course I wish to stress the fact that every new account before it is given credit must be carefully investigated, because many small uncollected accounts can put you under quicker than a big account that will pay you in full. If these small fellows gang up on you and don't pay, it is just too bad.

"So you have to be very careful in your investigation. Don't take them on unless C.O.D., with a good stiff deposit when the order is given. We usually try to get the cost of materials with the order and the remainder C.O.D. which works out pretty well."

The Kirby Lithograph Company employs three salesmen in addition to the sales activities of Major Kirby.

Gage Heads Jury for IPI Contest

Nearly 6,000 Entries Expected from 280 Schools of Printing

HARRY L. GAGE, Vice-President of the Mergenthaler Linotype Co., Inc., and for many years a leader in the graphic arts education movement, will act once more as chairman of the jury for the IPI Essay Contest on Color, sponsored in cooperation with the National Graphic Arts Education Guild.

Fred J. Hartman, Educational Director for the Guild, is Chairman of the Contest Committee. Other members of the Jury and the Contest Committee will be announced later.

The response from the Contest announcements indicates that nearly 6000 essays from students of printing in 280 schools will be entered in this year's competition. This represents an increase of 2000 entries over 1936. Essays are being written on the subject, "The Future of Color in Printing."

Authors of the four best papers submitted from each school will receive special Franklin Medallions, to be presented during Printing Education Week ceremonies (January 16-22). Two awards will be made to freshmen and sophomores and two to juniors and seniors.

The best papers from each school will be judged in a national competition by the jury headed by Mr. Gage. The first-prize winner in the junior-senior category will get a $400 scholarship to the Carnegie Institute of Technology's School of Printing plus a job with the International Printing Ink Corporation when he has finished his course. Other national prizes include trips to New York and a practice printing press.

Start Course in Photographic and Plate Making Procedures

The first of ten sessions comprising a course in the science of photographic and plate making procedures was held on December 8 at the New York Trade School, under the supervision of Lithographic Technical Foundation, Inc.

The course has for its objective providing experienced photographers, color correctors, plate makers, and shop executives with non-technical explanations of the "whys and wherefores" of various production procedures. It is being conducted by Kenneth Martin of the Harold M. Pitman Company.

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Camera Operations

(*Continued from page 23*)

the negative from oxidized developer. Therefore, the addition of a weak acid such as acetic acid or an acid salt, such as potassium metabisulphite, to the hypo solution will provide an effective means of preparing the developed image for permanency.

A normal fixer usually contains the hypo and an acid hardener. These two solutions are compounded separately and after the hardening solution has cooled it is slowly added to the hypo with rapid stirring. The hardener contains a preservative sodium sulphite which tends to stabilize the working qualities of the hypo in the presence of an acid. Potassium alum is also added since it has the ability of tanning the gelatine and preventing excessive swelling of the emulsion, because of the length of time during which the negative has been subjected to moisture and chemicals. Guarding against excessive swelling tends to aid the hardening qualities of the emulsion and thus prevents easy scratching. A decreased swelling will also expedite drying.

Potassium chrome alum is substituted many times for the Potassium Aluminum Sulphate variety, especially on paper negatives. In this case suphuric acid is compounded with chrome alum without the addition of Sodium Sulphite. This condition is necessary because of the loss of hardening properties which chrome alum undergoes in the presence of sodium sulphite. This occurs whether the solution has been in use or whether it has been standing. However, when a chrome alum fixing bath is correctly compounded its action compares favorably with that of the potassium alum fixing bath. Boric acid crystals are also used in the hardening bath in order that there may be a decrease in the rate with which the sludge, aluminum sulphite, forms and settles on the negatives and on the bottom of the fixing tray.

There are certain properties which all satisfactory acid hardening fixers should possess, namely: a considerably rapid rate of fixation, normal hardening or tanning of the gelatine, a long, efficient and useful life, and a long sluding life. The length of time of fixation can be judged as twice the time required for the disappearance of the cream color which shows on the reverse side of the negative, if it happens to be a film or dry plate negative. The length of fixing time primarily depends upon three factors: (1) the strength of the hypo solution and its accompanying hardening qualities. (2) the temperature of the fixing bath and (3) the type and thickness of the emulsion. It has been recommended that the hypo content at 30% to 40% of solution fixes most rapidly. With continued use the efficiency of the fixing bath decreases although a minimum amount of alkaline developer has been transported to it. In fact, the small amount of developer at first tends to increase the life of the fixer without the formation of the insoluble sludge or precipitated sulphur.

Any presence of froth on the surface of the fixer or a milkiness throughout the solution indicates the exhausted condition of the fixing bath. Changes in the temperature of the fixing bath materially affect the rate of exhaustion and the rate of fixation. For instance, a high temperature, although increasing the speed of fixation, is apt to cause rapid precipitation. It is recommended, therefore, that the fixing solution be used at 65° to 70° Fahrenheit.

Because of the great varieties of emulsions used on negatives, only general recommendations can be given for determining complete and satisfactory fixing time. Assuming that normal conditions exist, the negative should be fixed for twice the time required for the elimination of the opalescent appearance on the reverse side of the negative. Paper negatives require at least five minutes to fix thoroughly.

Someone Recognized Quality

No individual, trade association, or other agency should use the brain-child of another person without giving that individual proper credit for authorship. The publisher and editor of this magazine fully believes in that ethical concept, and appreciating the extent and the effect of plagiarism in the association and publishing fields, he announces it as a predicate for the following statement:

On pages 29 and 54 of THE PHOTO-LITHOGRAPHER'S MANUAL appear two articles on sales and selling procedure which bear no mark as to their author. They were originally prepared and published by Henry M. Ellis, a Sales Consultant of Chicago, as a part of Planned Sales Promotion, a copyrighted service on Sales Management Procedure for the Graphic Arts Industries. How they came to be used (without proper identification and credit) is a mystery.

Recently this error was called to the publisher's attention, and having established their origin, he now publishes this belated credit. At the same time grateful acknowledgment is made of authority from Mr. Ellis to continue their use so long as they may be helpful to the photo-lithographic industry in its efforts to establish better methods for use in promoting the sale of its products.

Famous Artist Retained by General

Barry Bart, famous French exponent of balance in color, shape, and form, has been retained by the General Lithographic Corporation of New York in a consultant capacity.

Mr. Bart has a world-wide reputation as an artist, painter, illustrator, architect, and sculptor. He was the winner of the Grand Prix de Rome.

The new Bart theory of true color complements and their harmonies of which he is the originator is extensively recognized. Today he brings to industry applied art; balance in color, shape and form-streamlining.

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"WHERE TO BUY IT"

This Handy Reference Page is a regular monthly feature of THE PHOTO-LITHOGRAPHER
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Listings are carried on this page at the rate of *One Dollar Per Line per Month or Ten Dollars a Year Payable in Advance*

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Kromberg & Associates, C. P. A.'s, J., 461 Eighth Ave., New York, N. Y.
Levess, Herbert H., C. P. A., 360 W. 23rd St., New York, N. Y.
Reinish, Samuel S., C. P. A., 2 Lafayette St., New York, N. Y.

ACIDS
California Ink Co., Inc., 545 Sansome St., San Francisco, Calif.
Mallinkrockdt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
National Offset Supply Co., St. Louis, Mo.,
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.

ADDRESSING AND MAILING SERVICES
Ardlee Service, Inc., 28 W. 23 St., New York, N. Y.
Gray, James Letter Shop, 215 E. 45th St., New York, N. Y.

AIR CONDITIONING EQUIPMENT
Offen, B. & Co., 608 S. Dearborn St., Chicago, Ill.

ALUMINUM PLATES
(See Plates)

ALBUMEN
California Ink Co., Inc., 545 Sansome St., San Francisco, Calif.
Holland, Thor, 7048 Jones Ave., N. W., Seattle, Wash.
Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.
Mallinkrockdt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
National Offset Supply Co., St. Louis, Mo.
Norman Willets Co., 318 W. Washington St., Chicago, Ill.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

ALIGNING PAPER
(See Vogeltype Paper)

AMMONIUM DICHROMATE
Mallinkrockdt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.

ARC LAMPS
(See Lamps—Arc)

ASPHALTUM
Hilo Varnish Corporation, 42-60 Stewart Ave., Brooklyn, N. Y.
International Printing Ink Corporation, 75 Varick St., New York, N. Y.
National Offset Supply Co., St. Louis, Mo.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

ARTISTS
Hugo L. Sachs, 7 West 20th St., New York, N. Y.

ARTISTS' SQUARES
Zoltan, John M., 833 Lyman Ave., Oak Park, Ill.

ARTISTS' SUPPLIES
Peerless Blue Print Co., The, 347 Fifth Ave., New York, N. Y.

BELLOWS
United Camera Co., Inc., 1515 Belmont Ave., Chicago, Ill.

BENDAY AND SHADING MEDIUMS
(See Shading Mediums)

BINDINGS
Plastic—Brewer—Cantelmo Co., Inc., 118 E. 27th St., New York, N. Y.
Spiral—Spiral Binding Company, 148 Lafayette St., New York, N. Y.
Wire-O—Trussel Mfg. Co., Poughkeepsie, N. Y.
(See list of licensees in display advertisement)

BLANKETS
Bainbridge, Philip M. (Goodrich Rubber Blankets), 95 Madison Avenue, New York, N. Y.
California Ink Co., Inc., 545 Sansome St., San Francisco, Calif.
Ideal Roller & Mfg. Co., 2512 W. 24th St., Chicago, Ill.
International Printing Ink Corporation, 75 Varick St., New York, N. Y.
National Offset Supply Co., St. Louis, Mo.
Rapid Roller Co., Federal at 26th, Chicago, Ill.
Reed Roller & Supply Co., Inc., 415-417 Jackson St., San Francisco, Cal.
Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.

New Developments

(*Continued from page 15*)

corresponding concentrated fountain solution is used in each gallon of fountain solution. From 50 to 75% of the usual water requirement of the plate is eliminated and work stays open with clean metal between the dots.

These solutions give superior results to plates coated with dichromated gum, gum tanned with chromium salts such as chrome alum or chromium chloride, or gum tannic acid or gum gallic acid mixtures, which are only moderately efficient. A distinguishing characteristic of the fountain solution as developed by this laboratory is that it is substantially neutral and that no acid has to be added to keep the work free from scum when printing greasy inks. These solutions contain no gum arabic, phosphoric or chromic acid or dichromates; in fact, none of the usual etching chemicals are used.

We have prepared a synthetic gum solution for preventing plate oxidation during storage. The coating film is strong and not brittle; moreover, it transmits moisture more slowly than gum films, and it cannot become acidic on storage and it will not sour or support bacterial or mold growth.

Other products developed during recent months include a high adhesion resistant tusche, lacquer bases, asphaltum wash-out, and developing inks. It is hoped that the Chemical Division of the Harris-Seybold-Potter Company will shortly be able to prepare quantities of these materials for the industry.

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AND EDITORIAL NEEDS

for your own organization and your customers . . . in the way of publication and direct advertising, house magazines, sales letters . . . would be handled 1, 2, 3 — just like that, and so expertly that you could bill them very profitably, if entrusted to me.

You would have the benefit, at modest cost and on an occasional or part time basis, of my many years in advertising and editorial work. I could handle

DEVELOPMENT OF IDEAS,
COPY WRITING, MAKING OF ROUGHS,
SUPERVISION OF TYPOGRAPHY

All your advertising service under one competent direction and one responsibility!

Clients in the New York Metropolitan area could also have the benefit of my personal contacts with their customers in connection with advertising needs.

BOX D42, The Photo-Lithographer

This Shows Why

Actual unretouched photomicrographs show why EGGSACT, the processed liquid albumen concentrate, gives such distinctly superior results

An EGGSACT printing surface is practically free of impurities and insoluble matter, whereas ordinary egg albumen produces large surface cracks and minute fractures, due to presence of natural impurities and insoluble matter. An EGGSACT coated plate prints clear-edge impressions of the halftone dots . . . sensitize your plates with EGGSACT.

EGGSACT

Eggsact Trade Mark Registered in U. S. Patent Office

THOR HOLLAND COMPANY

7048 JONES AVENUE, N. W., SEATTLE, WASHINGTON

PRINTERS *and* LITHOGRAPHERS!

Let us

BE YOUR PHOTOGRAPHIC AND PLATE DEPARTMENT

Transfer and Press Plates of highest quality made with our special "Protalbin" process. Line — Halftone — Black and color plates.

Strictly a trade house—
Absolutely no printing.

Estimates Cheerfully Submitted

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103 Lafayette Street, New York City

Telephone: CAnal 6-4653

Sinclair & Carroll Co., Inc., 591 Eleventh Ave., New York, N. Y.
Sinclair & Valentine Co., 11 St. Clair Pl., New York, N. Y.
Vulcan Proofing Co., 58th St. and First Ave., Brooklyn, N. Y.

BRONZERS

Henschel Mfg. Co., Milwaukee, Wis.

CAMERAS

Agfa-Ansco Corp., Binghamton, N. Y.
California Ink Co., Inc., The, 545 Sansome St., San Francisco, Cal.
Eastman Kodak Co., 343 State St., Rochester, N. Y.
Lanston Monotype Machine Co., 24th at Locust, Philadelphia, Pa.
Levy, Max & Co., Wayne & Berkley, Philadelphia, Pa.
Litho Equipment & Supply Co., 215 W. Ohio St., Chicago, Ill.
Miles Machinery Co., 18 East 16th St., New York, N. Y.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Ostrander-Seymour Co., The, 1870 S. 54th Ave., Cicero Station, Chicago, Ill.
Pitman, Harold M., Co., 150 Bay St., Jersey City. N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Repro-Art Machinery Co., Wayne Ave. & Berkley St., Philadelphia, Pa.
Robertson, R. R., 1 N. Canal St., Chicago, Ill.
Sullebarger Co., E. T., 116 Nassau St., New York, N. Y., and 538 S. Clark St., Chicago, Ill.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y., and Scranton, Pa.
Zeiss, Carl, Inc., 485 Fifth Ave., New York, N. Y.

CARDBOARDS AND BRISTOLS

Wheelwright Papers, Inc., 230 Park Ave., New York, N. Y.

CARBON (ARC LAMP)

Pease Co., C. F., The, 809 N. Franklin St., Chicago, Ill.

CARBON PAPER RIBBONS

Remington Rand, Buffalo, N. Y.

CARBONS—Photographic

Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.
Norman Willets Co., 318 W. Washington St., Chicago, Ill.

CHEMICALS

Agfa-Ansco Corp., Binghamton, N. Y.
California Ink Co., Inc., The, 545 Sansome St., San Francisco, Calif.
Eastman Kodak Company, Rochester, N. Y.
Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.
La Motte Chemicals Products Co., 438 Light St., Baltimore, Md.
Mallinkrockdt Chemical Works, 3600 N. Second St., St. Louis, Mo.
Merck & Co., Inc., Rahway, N. J.
National Offset Supply Co., St. Louis, Mo.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Phillips & Jacobs, 622 Race St., Philadelphia, Pa.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, Inc., J. H. & G. B., 47 Watts St., New York, N. Y.

COLOR CONTROL AND MEASURING EQUIPMENT

Huebner Laboratories, 202 E. 44th St., New York, N. Y.

COMPOSITION

Monsen, Thormod and Son, Inc., 740 N. Franklin St., Chicago, Ill.

COMPOSING MACHINES

Coxhead Corp., Ralph C., 17 Park Place, New York, N. Y.

CRAYONS-LITHO

Korn, Inc., Wm., 120 Center St., New York, N. Y.
Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

DAMPENING DEVICES

Goodrich, The B. F. Co., 570 S. Main St., Akron, Ohio.
International Press Cleaner & Mfg. Co., The, 112 E. Hamilton Ave., Cleveland, Ohio.
Wagner, Charles, Litho Machine Co., 51 Park Ave., Hoboken, N. J.

DEEP ETCH SUPPLIES

Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Schultz, H. J., 2230 N. Racine Ave., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

DICHROMATE—Ammonium Photo Granular

Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.

DIE CUTTING MACHINE—Semi-Automatic

Krause U. S. Corp., Karl, 55 Vandam Street, New York, N. Y.

Recommendations and Formulae for Albumen Plate Making

(*Continued from page 37*)

FORMULA FOR FOUNTAIN ETCH

Sol. A.—Water (distilled)	.....	32 fluid ounces
Gum solution (10° Baume)	.....	32 fluid ounces
Phosphoric acid (Syrupy 85%)	.....	2 fluid ounces
Ammonium bichromate (Con. Sol.)	.....	4 fluid ounces

To make concentrated solution of ammonium bichromate, use ammonium bichromate in water until saturation point is reached.

Sol. B.—Water (distilled)	.....	1 gallon
Magnesium nitrate	.....	1 pound

For use in fountain: One ounce Solution A and one ounce Solution B in one gallon of water. As much as four ounces each of Solutions A and B may be used when necessary.

The above solution usually works well with most plate making formulae. However, the formula that gives the best results under existing conditions in the plant should be followed.

Recommendations and suggestions contained herein are not to be construed as offering information regarding the operation of offset presses. Information of this nature is available from the press manufacturers and only their instructions should be followed.

HINTS

A plate department that is operated systematically will experience minimum trouble. Guessing as to exposures, chemical weights, etc., only leads to poor quality and slow production. A record of exposures in the vacuum frame and all the printing light distances should be carefully preserved. Negatives of uniform quality will produce uniformly good plates. As previously stated, there is very little that can be done in printing to improve a poor negative.

The printing light should be kept as far from the vacuum frame as is possible without overly increasing exposure time. A printing light too close to the frame will result in uneven coverage and diffraction of light ray which tend to thicken lines and enlarge dot size. The ideal light distance should be determined and then maintained thus creating a constant light source, the only variable remaining being that of the negative itself.

Light intensity is not based on proportionate distance of light from frame but rather the inverse square is involved. Example: If exposure required with light 36 inches from copy is ten seconds, then lights were moved back 9 inches or 25%, exposure required would not be 25%, or 2½ seconds additional, but 2½ seconds x 4 + 10 seconds additional, or twenty (20) seconds in all.

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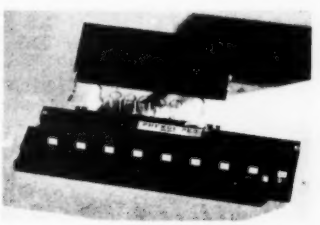
545 Sansome Street — San Francisco, Calif.

pH SLIDE COMPARATORS



for **CONTROL** *of* **FOUNTAIN SOLUTIONS**

A simple, practical outfit for controlling the pH of fountain solutions and coating mixtures.

The color standards are enclosed in a Bakelite slide and the pH values are placed above each individual standard.

Determinations are made simply by sliding the color standards in front of the test sample until a color match is obtained and reading the pH from the values on the slide.

The operation of the set is thus very rapid and so simple that any workman can use it.

All Standards guaranteed for 5 years.

MODERN pH AND CHLORINE CONTROL—a 65-page handbook, containing a simple explanation of pH control, its application to numerous problems, and descriptions of our pH, chlorine and phosphate control equipment.

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872 LINDEN AVE., BALTIMORE, MD.

DRIER—Paste and Liquid

Indiana Chemical & Mfg. Company, Indianapolis, New York City, Chicago.

DRYING OVENS

Zarkin Machine Co., Inc., 355 E. 27th St., New York, N. Y.

DRYERS

Carter, C. W. H., 100 Varick St., New York, N. Y.
Hilo Varnish Corporation, 42-60 Stewart Ave., Brooklyn, N. Y.
Sinclair & Valentine Co., 11 St. Clair Pl. New York, N. Y.

DYNAMOS—MOTORS—PRESS DRIVES AND ELECTRICAL CONTROL EQUIPMENT

American Type Founders Sales Corp., 200 Elmora, Ave., Elizabeth, N. J.
Cline-Westinghouse, Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Kimble Electric Co., W. 14th St. & S. Damen Ave., Chicago, Ill.
Northwestern Electric Co., 408 S. Hoyne, Chicago, Ill.
Robbins & Meyers, Inc., Springfield, Mo.

ENVELOPES

Dayton Envelope Co., Dayton, Ohio.

ETCHES

Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y

FADE-O-METER

Atlas Electric Devices Co., 361 W. Superior St., Chicago, Ill.

FILMS

Agfa Ansco Corp., Binghamton, N. Y.
California Ink Co., Inc., The, 545 Sansome St., San Francisco, Cal.
Eastman Kodak Co., Rochester, N. Y.
Gevaert Co. of America, Inc., The, 423 W. 55th St., New York, N. Y.
Haloid Co., The, 6 Haloid St., Rochester, N. Y.
Hammer Dry Plate & Film Co., Ohio Ave. & Miami St., St. Louis, Mo.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Polygraphic Co. of America, 310 E. 45th St., New York, N. Y.

FLANNEL

Fuchs & Lang Mfg. Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Gevaert Co. of America, Inc., The. 423 W. 55th St., New York, N. Y.
International Printing Ink Corporation, 75 Varick St., New York, N. Y.
National Offset Supply Co., St. Louis, Mo.
Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

FOLDING MACHINERY

Baum, Russell Ernest, 615 Chestnut St., Phila., Pa.
Dexter Folder Co., 28 W. 23rd St., New York, N. Y.

GLYCERINE

Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.

GRAINING FLINT

New England Quartz Co. of New York, 450 Seventh Ave., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

GRAINING AND REGRAINING—Zinc, Aluminum, Glass and Multilith Plates

Chicago Litho Plate Graining Co., 214-16 N. Clinton St., Chicago, Ill.
Illinois Litho Plate Graining Co., 913-921 W. Van Buren St., Chicago, Ill.
International Printing Ink Corporation, 75 Varick St., New York, N. Y.
Lithographic Plate Graining Co., 41 Box St., Brooklyn, N. Y.
Maddox Lithoplate Graining Corp., 503 S. Jefferson St., Chicago, Ill.
McKenna, James J., 1015 Callowhill St., Phila., Pa.
National Offset Supply Co., 613 N. Broadway, St. Louis, Mo.
Photo Litho Plate Graining Co., Inc., 1207 S. Highland St., Baltimore, Md.
Reliable Lithographic Plate Co., Inc., 17 Vandewater St., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Western Litho Plate & Supply Co., 1019 Soulard St., St. Louis, Mo.

GRAINING MACHINES

Fritsche, R., 145 Hudson St., New York, N. Y.
Hoe, R., & Co., Inc., 910 E. 138th St., at East River. New York, N. Y.
McKinley Litho Supply Co., 1600 John St., Cincinnati, O.
Zarkin Machine Co., 335 E. 27th St., New York, N. Y.

GRAINING QUARTZ FLINT

New England Quartz Co. of New York, 450 Seventh Ave., New York, N. Y.

GUM ARABIC

Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.

Label Manufacturers Elect and Adopt

AT the annual meeting of Label Manufacturers National Association, held recently in Cincinnati, directors and officers for 1938 were elected as follows:

DIRECTORS

Frank W. Barnard of Calvert Lithographing Co., Detroit, Mich., Arthur W. Brockway of Muirson Label Company, Brooklyn, N. Y., W. E. Craig of Brandau-Craig-Dickerson Co., Nashville, Tenn., John C. Doller of Simpson & Doller Company, Baltimore, Md., George K. Horn of Maryland Color Printing Co., Baltimore, Md., H. W. Johnston of Stecher-Traung Lithograph Corp., Rochester, N. Y., Daniel J. Kerwin of Woodward & Tiernan Printin Co., St. Louis, Mo., Theodore C. Nevins of Nevins-Church Press, Bloomfield, N. J., Carl R. Schmidt of Schmidt Lithograph Co., San Francisco, Calif., William L. Taylor of Multi-Colortype Co., Cincinnati, Ohio, Joseph P. Thomas of U. S. Printing & Lithograph Co., Cincinnati, Ohio.

OFFICERS

President—George K. Horn
First Vice-President — Theodore C. Nevins
Second Vice-President — William L. Taylor
Third Vice-President — Joseph P. Thomas
Treasurer — Arthur W. Brockway
Executive Secretary — Charles R. Cosby

A constructive program to be followed during the next year was adopted. It includes the following items:

Provisions for regular and effective arbitration of disputes involving trade customs and ethics.

Provision for dissemination among members of actual market values of standardized labels as determined in closed sales transactions.

Enlarged scope of the industry's statistics of current orders in relation to capacity.

A plan for sales promotion of box labels.

A decided feeling of optimism regarding the prospects of the Association and its members during 1938 made this meeting one of the most encouraging ever held by the Association.

Another New Hamilton Distributor

The Central Ohio Paper Company, Cleveland, Ohio, has been appointed agent for Hamilton Bond, Hamilton Ledger, and Hamilton Mimeopen Bond.

ILFORD
PANCHROMATIC DRY PLATES

SPECIAL RAPID
(Yellow Label)
The universally accepted standard plate for continuous-tone color separation negatives for all purposes.

SOFT GRADATION
(Pink Label)
Used the world over for exacting reproductions of colored objects in monochrome . . . . . .

Has your plant a copy of the new "Ilford Manual of Process Work?" Price now reduced to $2.75.

—are indispensable for true color separation work.

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★
IMMEDIATE SHIPMENT
★
LOWER PRICES

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National Offset Supply Co., St. Louis, Mo.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

HAND ROLLERS

Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, Inc., J. H. & G. B., 47 Watts St., New York, N. Y.

HUMIDIFICATION

Advance Mfg. Co., Inc., Louisville, Ky.
Carrier Engineering Co., 850 Frelinghuysen Ave., Newark, N. J.
Lorenz & Co., Inc., Louis, Rose & Duane Sts., New York, N. Y.
Southworth Machine Co., 30 Warren Ave., Portland, Maine.

HYDROQUINONE

Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.
Mallinkrockdt Chemical Works, 3600 N. 2nd St., St. Louis, Mo.
Norman Willets Co., 318 W. Washington St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

INK COMPOUNDS

Indiana Chemical & Mfg. Company, Indianapolis, New York City, Chicago.

INKS

Acheson Ink Co., Inc., 142 Skillen St., Buffalo, N. Y.
American Printing Ink Co., Div. General Printing Ink Corp., 2314 W. Kinzie St., Chicago, Ill.
August Corp., Charles, The, 416 Orleans St., Chicago, Ill.
Bowers Printing Ink Co., 711 W. Lake St., Chicago, Ill.
Braden-Sutphin Ink Co., 1736 E. 22nd St., Cleveland, Ohio
California Ink Co., 545 Sansome St., San Francisco, Calif.
Ceb Printing Ink Co., Chicago, Ill.
Crescent Ink & Color Co. of Penn., 464 N. 5th St., Phila., Pa.
Driscoll, Martin & Co., 610 Federal St., Chicago, Ill.
Flint Ink Co., Howard, 2545 Scotten Ave., Detroit, Mich.
Fuchs & Lang Mfg. Co., Div. General Printing Ink Corp., 100 Sixth Ave., New York, N. Y.
Gaetjens, Berger & Wirth, Inc., 35 York Street, Brooklyn, N. Y., and 538 S. Clark St., Chicago, Ill.
Herrick Ink Co., Inc., Wm. C., 325 W. 34th St., New York, N. Y.
Huber, Inc., J. M., 460 W. 34th St., New York, N. Y.
International Printing Ink Corp., 75 Varick St., New York, N. Y.
Johnson & Co., Inc., Charles Eneu, 10th & Lombard Sts., Phila., Pa.
Kohl & Madden Printing Ink Co., 731 Plymouth Court, Chicago, Ill.
Levey Co., Inc., Frederick H., 59 Beekman St., New York, N. Y.
Mayer Co., Inc., Robert, 1107 Grand St., Hoboken, N. J.
National Offset Supply Co., St. Louis, Mo.
Prescott Co., H. S., 470 Atlantic Ave., Boston, Mass.
Reed Roller & Supply Co., Inc., 415 Jackson St., San Francisco, Cal.
Roberts, Inc., Lewis, 72 Union St., Newark, N. J.
Roosen Co., H. D., Ft. 20th-21st St., Brooklyn, N. Y.
Schwarm & Jacobus Co., The, 1216 Jackson St., Cincinnati, Ohio
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, Inc., J. H. & G. B., 47 Watts St., New York, N. Y.
Sinclair & Carroll Co., Inc., 591 11th Ave., New York, N. Y.
Sinclair & Valentine Co., Inc., 11-21 St. Clair Pl., New York, N. Y.
Sleight Metallic Ink Companies, Inc., 538 N. Third St., Phila., Pa.
Triangle Ink & Color Co., Inc., 26 Front St., Brooklyn, N. Y. (also Boston, Mass., Baltimore, Md., and St. Louis, Mo.).
Williams Co., Inc., R. S., 257 W. 17th St., New York, N. Y.
Winslow Ink Corp., 124-132 White St., New York, N. Y.

INK WAX REDUCER (Smoothol Ink Wax)

Smith Co., Francis X., 952 E. 93rd St., Brooklyn, N. Y.

INSURANCE—Workmen's Compensation

N. Y. Printers & Bookbinders Mutual Insurance Co., 147 Fourth Ave., New York, N. Y.

LITHOGRAPHIC ABSTRACTS

Abstracts of important current articles, patents, and books, compiled by the Research Department of the Lithographic Technical Foundation, Inc. These abstracts represent statements made by the authors of articles abstracted, and do not express the opinions of the abstractors or of the Research Department. Mimeographed lists have been prepared of (1) Periodicals Abstracted by the Department of Lithographic Research, and (2) Books of Interest to Lithographers. Either list may be obtained for six cents, or both for ten cents (in stamps). Address the Department of Lithographic Research, University of Cincinnati, Cincinnati, Ohio.

PHOTOGRAPHY and COLOR CORRECTION

A DENSITY METER: BALANCED NEGATIVES IN COLOR WORK. Anonymous. *Process Engraver's Monthly*, 44, No. 524, Aug. 1937, pp. 261-2. The Smethurst diffuse density meter is described. This device is intended for use with large photographic plates, up to a maximum of 30 inches wide. No neutral wedges or filters are used. The density is read on a large scale, the range being from 0.0 to more than 3.0. The single lamp used in the instrument is pre-focussed.

PHOTOGRAPHIC PROGRESS DURING 1936. G. E. Matthews. *Photographic Journal*, 77, Apr. 1937, pp. 193-206. Advancements in photography and its applications during 1936 are reviewed. Besides many other phases of still and motion picture photography, the following subjects of interest to graphic arts workers are outlined: (1) color photography; (2) the use of sensitometry in photomechanical work; (3) the masking method of color-separation; (4) the making of copies in one step from negatives or positives; (5) stripping-film; (6) emulsions of high contrast; (7) accurate determination of exposure; (8) methods and control of development; (9) recovery of silver from used fixing baths. References and bibliography are included.

THE PHYSICAL BASIS OF COLOR MEASUREMENT. A. C. Hardy. *Journal of Applied Physics*, 8, No. 4, Apr. 1937, pp. 233-8. The necessity for the objective evaluation of color is explained and procedures for making such evaluations by use of various types of spectrophotometers and colorimeters are summarized.

DOT-ETCHING ON DRY PLATES AND FILMS. R. F. Reed and P. W. Dorst. *Research Bulletin No.* 11, Lithographic Technical Foundation, Inc., 220 East 42nd Street, New York, New York. 1937. The results of a detailed study of dot-etching methods and materials are reported in this

SR INC

COLOR SEPARATIONS • BLACK AND WHITE • • COLOR CORRECTED NEGATIVES READY FOR THE PHOTO-COMPOSING MACHINE • POSITIVES • PROVING • • PRESS PLATES: ALBUMEN DEEP ETCH • • •

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WE OPERATE NO PRESSES NOR ARE WE AFFILIATED WITH ANY LITHOGRAPHIC HOUSE . . . .

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DEVELOPING INK
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Superior products designed for the finest work and developed in conjunction with leaders in the lithographic field.

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OF PENNSYLVANIA

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LAMPS, ARC

Atlas Electric Devices Co., Inc., 361 W. Superior St., Chicago, Ill.
Gelb Co., Joseph, 250 W. 54th St., New York, N. Y.
Macbeth Arc Lamp Co., 875 N. 28th St., Phila., Pa.
Ostrander-Seymour Co., The, 1870 S. 54th Ave., Cicero Station, Chicago, Ill.
Pease Co., C. F., The, 809 N. Franklin St., Chicago, Ill.
Sullebarger Co., E. T., 116 John St., New York, N. Y., and 538 S. Clark St., Chicago, Ill.

LENSES

Bausch & Lomb Optical Co., 140 Smith St., Rochester, N. Y.
Goerz American Optical Co., C. P., 317 E. 34th St., New York, N. Y.
Norman Willets Co., 318 W. Washington St., Chicago, Ill.
Ostrander-Seymour Co., The, 1870 S. 54th Ave., Cicero Station, Chicago, Ill.
Pitman, Harold M., Co., 150 Bay St., Jersey City, N. J., and 51st Ave. and 33rd St., Chicago, Ill.
Zeiss, Carl, Inc., 485 Fifth Ave., New York, N. Y.

LINE-UP AND REGISTER MACHINES, SYSTEMS AND TABLES

Craftsmen Line-Up Table Corp., 49 River St., Waltham, Mass.
Hamilton Mfg. Co., Inc., 1315 18th St., Two Rivers, Wis.
Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y., & Scranton, Pa.

LITHO DEVELOPING INK

International Printing Ink Corporation, 75 Varick St., New York, N. Y.
Hunt, Philip A., Company, 253 Russell St., Brooklyn, N. Y.—2432 Lakeside Ave., Cleveland, Ohio—1076 W. Division St., Chicago, Ill.

LITHO ENGRAVING AND DRAWINGS

Litho Trade Service Studio, 538 S. Clark St., Chicago, Ill.

LITHOGRAPHIC EQUIPMENT DISTRIBUTORS

Heuslein, R. J., Co., 11 S. Meridian St., Indianapolis, Ind.

MACHINISTS

Gegenheimer, Inc., Wm., 78 Roebling St., Brooklyn, N. Y.
Lorenz, Louis, & Co., Inc., Rose and Duane Sts., New York, N. Y.
Rathbun & Bird Co., Inc., 85 Grand St., New York, N. Y.

MAGNIFYING AND REDUCING GLASSES

Bausch & Lomb Optical Co., 635 St. Paul St., Rochester, N. Y.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Repro-Art Machinery Co., Wayne Ave. & Berkeley St., Phila., Pa.
Zeiss, Inc., Carl, 485 Fifth Ave., New York, N. Y.

MAKE-UP TABLES

Lanston Monotype Machine Co., 24th at Locust, Phila., Pa.
Miles Machinery Co., 18 E. 16th St., New York, N. Y.
Robertson, R. R., 400 W. Madison St., Chicago, Ill.
Wesel Mfg. Co., 468 Fourth Ave., New York, N. Y., and Scranton, Pa.

METAL DECORATING EQUIPMENT

Wagner, Charles, Litho Machinery Co., Div. of National-Standard Co., 51 Park Ave., Hoboken, N. J.

MOLESKIN AND MOLLETON

International Printing Ink Corporation, 75 Varick St., New York, N. Y.
McKinley Litho Supply Co., 1600 John St., Cincinnati, Ohio
Roberts & Porter, Inc., 100 Lafayette St., New York, N. Y., and 402 S. Market St., Chicago, Ill.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
Siebold, Inc., J. H. & G. B., 47 Watts St., New York, N. Y.
Wagner, Charles, Litho Machinery Co., Div. of National-Standard Co., 51 Park Ave., Hoboken, N. J.

MOTORS AND CONTROLLERS

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Hammer Dry Plate & Film Co., Ohio Ave. & Miami St., St. Louis. Mo.
Norman-Willets Co., 318 W. Washington St., Chicago, Ill.
Polygraphic Company of America, Inc., 310 E. 45th St., New York, N. Y.

OFFSET PLATE MAKING SERVICE

(See Plate Making Service)

bulletin. The first chapter summarizes the findings and gives practical instructions for making transparencies and carrying out the dot-etching operation. Transparencies made in the camera on thick-film emulsion can be dot-etched to the maximum extent, but contact positives and thin-film emulsions may be more desirable in certain cases. Four dot-etching agents give good results: Farmer's reducer, iodine-cyanide, ferricyanide-cyanide, and ceric sulfate. The characteristics of these reducers are listed, and instructions are given for using each of them. Following the instructions, the literature on dot-etching is reviewed, and the experimental work is described. Numerous photomicrographs illustrate the results obtained.

STRIPPING LITHO NEGATIVES. A. H. Reiser. *Lithographers' Journal*, 22, No. 8, Nov. 1937, p. 344. The methods of preparing copy for press-plate production are reviewed, discussing briefly the types of negatives used, the choice of material on which to strip the negatives, and methods of stripping. The economy and convenience of film as compared with glass as a stripping surface is stressed.

THREE-COLOR HALFTONES FROM SCREEN TRANSPARENCIES. S. H. Horgan. *Photo-Engravers' Bulletin*, 27, No. 3, Oct. 1937, pp. 37-9. The historical background of transparencies in color as copy for three-color halftones is set forth briefly, and short accounts of the Dufay color and Agfa color processes are given.

ENLARGING COLOR FILM. A. C. Austin. *National Lithographer*, 44, No. 11, Nov. 1937, pp. 22, 73. One method of enlarging color film is as follows: the film is set up in the transparency holder with the light behind it, and with the camera bellows extended to the limit, continuous-tone separation negatives are made. These negatives are photographed with fully extended bellows, to get enlarged positives, and these positives are again enlarged to the required size, and finally halftone negatives are made for copper plate work. The result is a reproduction with little loss of detail, but the method is cumbersome. With grainless film such as Kodachrome, enlargement by projection to almost unlimited diameter is permissible, and no appreciable loss of detail is entailed. For lithographic deep-etch it is necessary only to make continuous-tone separation negatives and halftone positives. The details of the projection method are included.

SECURING SATISFACTORY RESULTS WITH TWO COLOR PRINTINGS: CORRECT CHOICE OF COLORS AND FILTERS FOR PHOTO-LITHO REPRODUCTIONS. M. Leeden. *Modern Lithographer and Offset Printer*, 33, No. 9, Sept. 1937, pp. 179-80. For good results in two-color printing only suitable subjects can be used, and the color filters must be carefully chosen but need not be complementary. Special filters with correctly adjusted absorptions may be purchased but it is possible to use the standard three-color filters. If the standard three-color filters are used for two-color work, extra retouching will be required, depending upon the subject. Seven suitable pairs of printing ink

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New England Quartz Company of New York, 450 Seventh Avenue, New York, N. Y.
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Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.
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colors are listed. The inks print more pleasingly if grayed slightly. The printing of two-color effects in which the colors harmonize rather than contrast is closely related to monochrome, and two half-tone plates are made from the monochrome original at different screen angles, one being a soft negative with a strong highlight dot and the other a strong highlight negative with extreme light tones cut out. Slight retouching will produce results of great strength and brilliance.

LIGHTING FOR COLOR PHOTOGRAPHY. G. Geohegan. *Process Engraver's Monthly,* 44, No. 524, Aug. 1937, p. 279. In color photography, correct color rendering is secured by matching a neutral density wedge on the separation negatives, only when the finished print is viewed in light similar to that used in photographing. Ordinary incandescent lamps can be used with some colors without great error, but not with extreme ranges of color, on account of the deficiency in blue light. Over-run lamps are satisfactory, arc lamps are perhaps better, and diffuse daylight is excellent, although variable.

PLANOGRAPHIC PRINTING SURFACES AND PLATE PREPARATION

SURFACE PRINTING PLATE, MORE PARTICULARLY OFFSET-PRINTING PLATE AND THE PROCESS FOR PRINTING THEREWITH. W. A. Boekelman and A. Elfers. *U. S. Patent* No. 2,097,831 (Nov. 2, 1937). Method of printing from a printing form for offset printing having a closed smooth surface of a lead alloy bearing a metal ink-receptive design, comprising the step of applying water directly to the closed smooth surface of a lead alloy.

DEEP-ETCHED LITHOGRAPHIC PLATES DIRECTLY FROM NEGATIVES. R. F. Reed and A. George. *Research Bulletin* No. 10, Lithographic Technical Foundation, Inc., 220 East 42nd Street, New York, N. Y. 1937. A process has been developed for making deep-etched plates directly from negatives. It involves making a print on metal in dichromated gum arabic, developing, reversing, removing the gum print, deep-etching, and applying of ink. Most of the technique is the same as in making deep-etched plates from positives. Formulas and complete directions are given in the bulletin.

EQUIPMENT AND MATERIALS

TYPE MATTER FOR REPRODUCING. H. H. Gugler. *Inland Printer,* 100, No. 1, Oct. 1937, pp. 69-71. Methods of reproducing type matter by offset, planograph, and gravure are described briefly, and their advantages are compared. In addition to ordinary methods already in use, the article takes up a new proving press made by Strachan & Henshaw, Ltd., which gives closer register than ordinary proving presses, and various marginal aligning typewriters such as the "Varityper" and the Stanford-Toman device (for use on ordinary type writers), the "Typrinter" using ordinary type instead of typewriter face, the Vogeltype aligning paper, and the Orotype photo-composing machine.

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National Offset Supply Co., St. Louis, Mo.
Senefelder Company, Inc., The, 32-34 Greene St., New York, N. Y.

COLLOIDS IN PHOTOMECHANICS. J. S. Mertle. *Graphic Arts Monthly*, 9, No. 10, Oct. 1937, pp. 32, 34, 36. The uses of albumin, gelatin, glue, and gum arabic in the graphic arts are outlined. Agar agar and Irish moss have found isolated uses, but have not become popular. Casein has been claimed to have certain points of superiority over fish-glue in photo-engraving. The historical development, sources, and methods of using these colloids, and the properties of plates coated with them, are discussed.

PAPER AND INK

PRINTING AND PRINTING INKS (Book.) Anonymous. Published by Gebruder Hartmann, Halle-Ammendorf, Germany. For those who read German this book forms a useful reference book on printing inks. It gives a useful summary of all the main printing processes (including aniline, collotype, tin, and transfer printing), printing machinery, and the properties required in inks for each process and in special inks such as carbon, "Kopierfarbe", check, banknote, celluloid, bronze, cellophane, metal foil, and rotary web inks. A special section deals with ink properties and defects (skinning, fastness to light, alkalies, acids, lacquers, butter and cheese, strike-through and sublimation of inks, rubbing off, sticking, tarnishing of metallic inks) and hints are given on estimating ink consumption, the mixing and shortening of inks and the use of driers. The last section deals with printing papers and their testing. (*Patra Journal*, 1, No. 2, Sept. 1937, p. 50).

DEVELOPMENTS IN OFFSET INKS. J. Beckett. *Graphic Arts Monthly*, 9, No. 10, Oct. 1937, pp. 48, 50, 52. Ink research falls under two heads: pigments and vehicles. The greatest development in the pigment field within 50 years was that of Monastral, or Syan Blue. A related pigment with greener tinge is being sought. Research on vehicles has produced a synthetic litho varnish superior in many ways to linseed varnishes. Problems yet unsolved are: (1) What constitutes the printability of an ink, and how can it be measured? (2) What is the best film thickness, what factors govern lifting, and how do they affect the quality of the finished print? (3) How can we measure the tack of an offset ink mechanically?

MODERN PAPER CONDITIONING METHODS AND THE PAPER HYGROSCOPE. R. F. Reed. Technical Bulletin No. 1, Lithographic Technical Foundation, Inc., 220 East 42nd Street, New York, N. Y. 1937. This bulletin describes the paper hygroscope and its use in paper conditioning. Modern methods of controlling paper humidity reduce misregister and such troubles as curling, waving, and static electricity to a minimum. Abridgements of this bulletin appear in *Photo-Lithographer* 5, No. 8, Aug. 1937, pp. 11-2; *Paper Trade Journal* 105, No. 8, Aug. 19, 1937, pp. 52, 54; and *Lithographers' Journal* 22, No. 6, Sept. 1937, p. 276.

PROCESS OF MANUFACTURING NAPHTHENATES. F. Meidert. *U. S. Patent* No. 2,095,508 (Oct. 12,

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1937). In the process of producing a composition of matter for driers containing naphthenates of the group consisting of aluminum, cerium, zirconium, lanthanum, and vanadium by precipitating said naphthenates by the interaction of aqueous solutions of salts of said metals with aqueous solutions of alkali metal naphthenates the improvement which comprises washing the precipitated naphthenate with water at boiling temperature and drying the washed precipitate, admixed with a plasticizer, while maintaining it in a molten state until the water is completely vaporized.

STUDIES UPON SMOOTHNESS, POROSITY, AND PRINTABILITY OF PAPER WITH NEW METHODS FOR DETERMINATION. F. M. Williams. *Tappi Papers*, 20th Series (1937), pp. 305-9. In using smoothness testers of the air-flow type, it is important to consider the barometric pressure, as well as the temperature and humidity conditions. Methods for making the determinations are suggested. It is possible to correlate the readings upon the Williams instrument with those of the Bekk when conditions are carefully controlled, and smoothness and plane porosity tests give valuable information as to the printability of paper.

GENERAL

STANDARDIZATION OF PRESS ROOM PRACTICE. C. F. Geese. *National Lithographer*, 44, No. 11, Nov. 1937, p. 30. The fixing of responsibility in small shops is discussed, and methods of testing out new photographic materials, blankets, and inks without upsetting the routine of the shop, endangering production, or risking heavy losses are described.

DANGERS OF POISONING IN THE INDUSTRIES USING GASOLINE AND BENZENE. M. M. Ibañez. *Farmacia Moderna*, 47, pp. 707-10 (1936) *Chimie & Industrie*, 36, p. 729. The effects of gasoline are sometimes manifested slowly when the concentration in the atmosphere is low; at a concentration of 10 mg. per liter, the atmosphere is harmful; at 20-30 mg. it can produce fainting. There is generally chronic poisoning which produces lesions in the bone marrow through the action of the benzine on the protoplasma; there results aggravated anemia, with decrease in the red corpuscles, hemoglobin and leucocytes in the blood. Pure benzene is more toxic than commercial benzene. (*Chemical Abstracts* 31: 1905 (1937))

THE PATHOLOGY OF THE NEWER COMMERCIAL SOLVENTS. A. V. St. George. *American Journal of Clinical Pathology*, 7, pp. 69-77 (1937). Effects of carbon disulfide, carbon tetrachloride, acetone, ethylene glycol, alkyl and other acetates, and other organic solvents are described. (*Chemical Abstracts* 31: 2685 (1937))

THE SIZING OPERATION IN METAL DECORATING. W. N. Misuraca. *National Lithographer*, 44, No. 11, Nov. 1937, pp. 20, 46. A sizing layer is applied to tinplate in order to cause succeeding coating layers to adhere more firmly.

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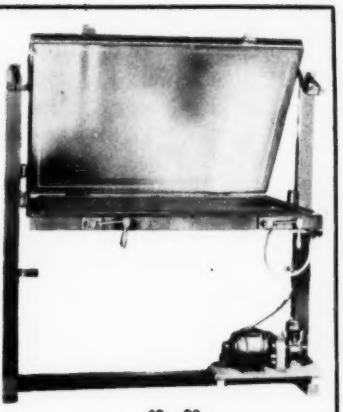

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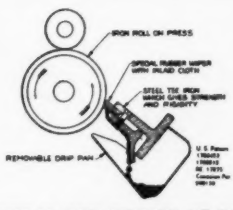

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NEW STUNTS, NEW ECONOMIES WITH PHOTOSTATS. C. V. Stucko. *Inland Printer*, 100, No. 1, Oct. 1937, pp. 31-3. Photostats are useful and economical in the field of reproduction for (1) copying layouts, (2) preparing copies of pictures and text for layout purposes, (3) preparing reversed copy for reproduction, (4) creating special effects, as with "Bas-relief" and Ben-Day photostats, (5) photo-montage, (6) superimposing type matter and photographs, (7) separating certain colors, as black from red.

MISCELLANEOUS

INTAGLIO PRINTING PLATE. W. J. Wilkinson. *Canadian Patent* No. 363,416 (Jan. 12, 1937). A photographic plate is exposed to light through a screen and a continuous-tone negative of the original subject, so that the exposed plate when developed interprets the different tones of the subject, except white, at reduced values, the darkest tone being represented by relatively large, practically unconnected dots, and all intervening tones between white and the darkest tone by dots of corresponding graduated areas. A plate having a light-sensitive coating, capable of remaining substantially unimpaired during etching of the plate, is exposed to light through the developed positive, developed and etched through its developed coating to form an intaglio printing plate. The coating is removed from the printing plate. (Chemical Abstracts 31: 2537-8 (1937)

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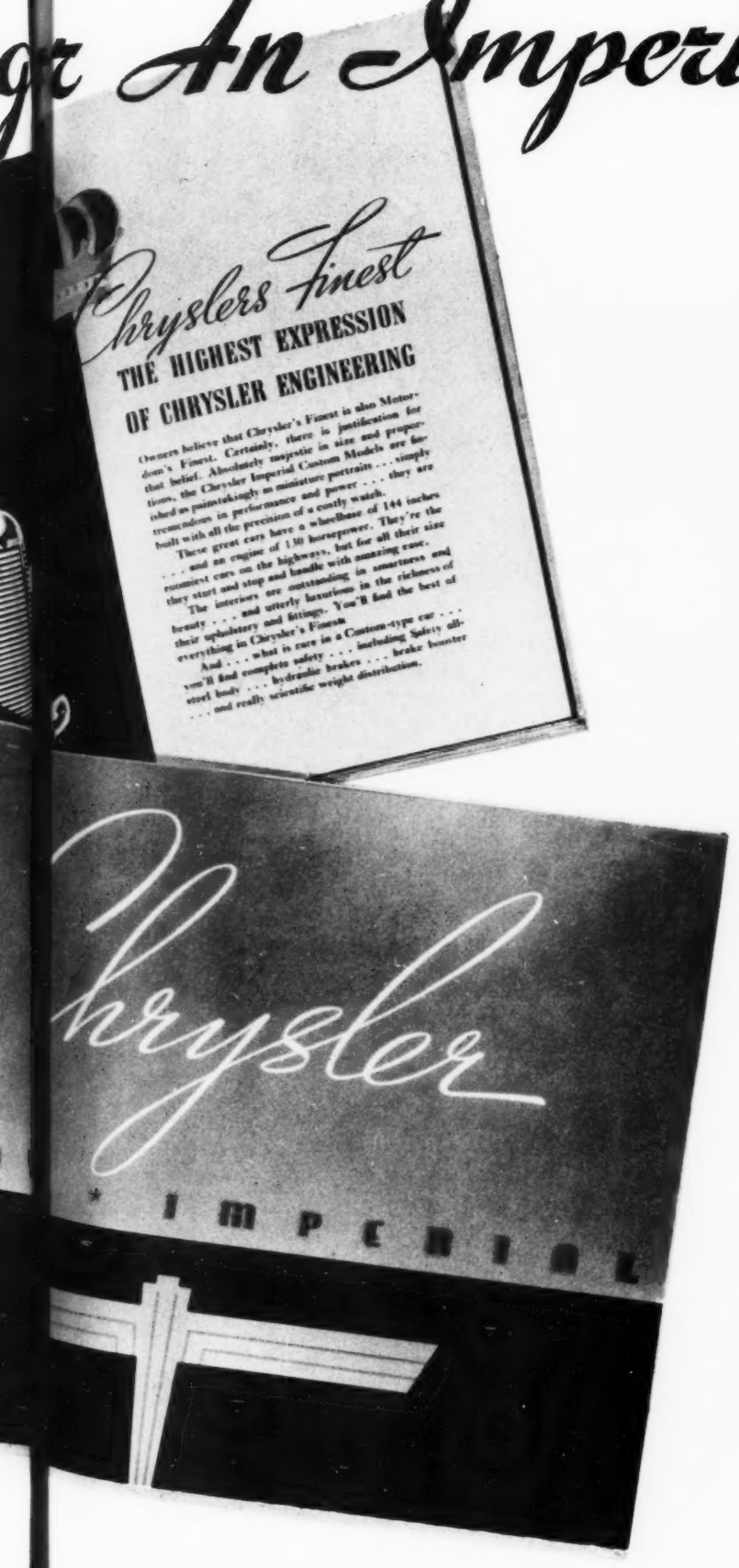
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Summary of survey proving customer wants to know *what* can be done with certainty, according to specifications and on time, not *how* it is to be done.

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49 ways in which the buyer can use lithographed mail and other direct advertising. A dictionary of opportunities for the salesman!

Illustrations in Advertising
How, when, and why to suggest use of illustrations in lithographed advertising literature.

Sales Value of Color
How color, knowingly used, has meant the difference between a few per cent returns and a "sellout."

Direct Advertising
Summary of the advantages of direct advertising over all other forms. Description of kinds of direct media.

U. S. Copyright Laws
A complete summary. Helps salesmen to help buyers who have new advertising ideas they are anxious to protect.

Opportunities for Salesmanship
How management and salesmen can co-operate for richer rewards.

Getting Out a Promotion Piece
Complete illustrated factual material for a Buyer's Guide —a compendium of all the information on photo-lithography a buyer should have at his fingertips.

Selling Photo-Lithography
Advice to the new salesman; how he can acquire and apply the "knowledge that is 40% of his total sales kit."

Selling Typewriter Composition
How to overcome buyers' prejudice against use of typewriter type.

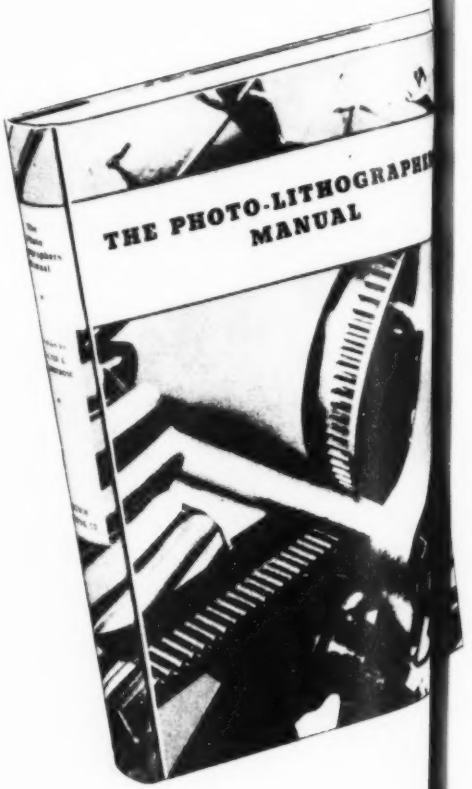
PRODUCTION

Re-Typing Department
How to prepare typewritten copy for reproduction. Contains many specimens of typewriter faces. Also copy-fitting table for various size pages and types, with correct line lengths, interlinear spacing, and marginal schemes.

Reproduction Proofs
Complete description of ways to assure the utmost excellence in reproduction proofs.

Selecting Type for Photo-Lithography
Reasons why certain types reproduce better than others.

Glance Through Th



Identifying and Measuring Type
Extensive illustrated guide to types best suited for li
raphic reproduction. How to choose the correct si
type.

Selecting Offset Inks
Ink a much more important factor in lithography tha
relief or gravure printing. How to select exactly the r
ink for each job. The necessary qualities in pigments
vehicles. Questions and answers on ink problems.

Selecting Ink Supplies
Valuable hints on buying stock and special inks and
nishes; pitfalls to be avoided.

Lithographic Inks
Blacks • Blues • Reds • Yellows • Wh
Properties of Secondary Colors
Tints • Varnishes • Driers • Overprinting • U
Special Stocks • Problems
Testing Lithographic Inks for Light Fastness.
(Each of these subjects is covered in a separate chap
These chapters represent one of the most thorough c
pilations from authoritative sources of data on litho
phic inks, tints, varnishes, and driers—their origin,
gredients, manufacture, and practical suggestions for
use under many different conditions. Written by re
nized experts who have specialized in the lithogra
field.

Complaints on Inks
A handy chart to help diagnose and correct many
problems in the pressroom. Lists 35 common complai
how to identify; method of detection; probable ca
probable remedy. This chart alone can be worth m
times the cost of the Manual in helping to locate
correct ink troubles with the minimum loss of time.

Fundamentals of Photography
A detailed description of photographic techniques
their important part in the whole lithographic pro

Photo-Mechanical Progress
General review of the progress made in the photo-
chanical divisions of the graphic arts. Use of electro
Dötvalhuescope. Dot etch plates. Nickel top plates.
lithography. Gelatin relief plates. Variable density scre
Metallic halftone screens. Stripping dry plates. Rotogra

...ial List of Contents

If you sell or would like to sell photo-lithography, the Manual is packed with immediately usable sales plans, stratagems and ideas. It is short on psychology and long on practical ways to make more money out of selling.

If you are interested in plant production, the Manual gives you over 175 pages full of information gathered from the experiences of some of the most successful production experts in the field.

If you are concerned with management, you will find in the Manual complete descriptions of organization methods as used by outstanding photo-lithographers to build large and profitable businesses.

Attractively and durably bound in linen on heavy board, the Manual's 337 8½" x 11" pages are lithographed throughout. The type is large... easily read; the paper is heavy and of good quality. A book worthy of a prominent place in every technical and business library!

...sider Dot Etching
...it has placed lithography on level of other processes ...e color work. Describes methods of photographic ...edure, development and fixation of etching positives, ...ogenization, etching of halftone positives.

...Technical Details of ...roductive Processes
...e-requisite to thorough knowledge of photo-lithogra... ...is familiarity with the characteristics of other repro... ...ive processes. This chapter of 79 pages starts with ...iptions of competitive processes, and cites their ad... ...ges and disadvantages in comparison with lithogra... Then follows an exhaustive history and description ...l branches of lithography and of every phase of the ... in each branch—from camera to completion. ...rs subjects such as Plant Layout, Paper and Ink, ...es, Research Activities, Camera Screens, Collotype, ...one Process, Photo-Lithography with Asphaltum, ...ing Ideal Halftone Prints, Definition of Color Terms, Science of Color, Fundamentals of Camera Construc... and Operation, Orthocromatics, Making Natural ...r Photographs, Chemistry of Photography, Making ...atives, Types of Negative Plates and How to Prepare ...n, Retouching in Color Lithography, Graining and ...mary of Graining Rules, Reversing, Pressroom Prob..., Etc.

...king an Albumen Plate
...ep-by-step detailed description covering all the nec... ...y chemical and mechanical operations. Contains valu... ...chemical formulas for preparing and etching plates.

...te Finishing Operations; ...servation on Press
... down to cases to clearly and practically describe the ... plate finishing methods. The Bichromate Method. ...ing Gum on Plate. Control of Plate on Press. pH ...trol.

...sentation of Deep-Etch Methods
...mprehensive resumé of the development and current ...e of all methods.

...ographic Plate Graining
...ustively describes graining materials, machines, mar... ...abrasives. Contains 14 illustrations of various grains ... detailed instructions as to how obtained.

Operating the Lithographic Press
Hints compiled from the long experience of expert pressmen, covering all phases of press preparation and operation.

Rubber Blankets for the Offset Press
Necessary qualities in good blankets; how made; cleansing agents; suggestions as to care.

Rubber Rollers
How made; essential qualities; effect of oxidation; washes; care; importance of blankets; correction of roller troubles.

Operating a Hoe Press
Describing with text and illustrations all main operations, with instructions for care and maintenance.

MANAGEMENT

Choosing Paper for the Job
How smart buyers choose paper both to *save* and to *make* money. Important factors to be considered when selecting paper.

Handling Office Routine
Outlining the main functions of all office departments—Accounting, Purchasing, Selling, Production, General Administration—with suggestions for their close co-operation to assure the greatest efficiency.

The Superintendent's Responsibility
Qualities of the ideal superintendent. How one superintendent obtained the complete loyalty and whole-hearted co-operation of all his men.

Personnel Administration
How to plan, supervise, and co-ordinate all personnel activities to produce most profitably with the minimum of human effort and friction. Illustrated with forms that have proved helpful in such work.

Who Owns Negatives and Plates?
Justifying the contention that "when a lithographer puts into negatives and plates all his own personality and that of his organization he gives more than a customer can buy."

How to Size Up Equipment
Discussing 13 of the earmarks of good equipment—simplicity, accessibility, rigidity, distribution, capacity, etc. An invaluable guide when considering new equipment.

Laying Out a Two-Press Plant
According to sequence of operations for maximum efficiency. Illustrated with detailed full page diagram of an ideal two-press plant.

Know Your Depreciation
Illustrates a permanent card that is a combination appraisal inventory, depreciation schedule, and record of repairs and renewals — a complete record from date of purchase until equipment is worn out or disposed of.

Paper and the Lithographic Industry
How to give lithographed work more character and distinction by the selection of the paper most suitable for each job.

Paper Calculator
A series of graphic tables, giving the number of copies of folders and booklets in 42 page sizes and various number of pages that will cut economically out of standard sheets. A handy guide for all who must calculate paper requirements.

Guard Your Costs
Defining and suggesting how to apply certain important cost-control principles.

A Centralized Production Control System
How one clerk can keep accurate record of every stage of production on every job. Detailed description of a system that can substantially reduce production expense and sustain customer good-will.

Scheduled Work Through Plant
Illustrated descriptions of forms to minimize mistakes, speed progress of work, and build up complete history of each job.

Glossary of Graphic Arts Terms
Over 200 trade terms clearly defined—from "Aberration" to "Zinc"!

"You are certainly to be congratulated on both the appearance and text matter in the book and I am sure that the entire industry will come to look upon it as their bible in time."

"This book is worth every cent of $10.00 for it serves so many purposes. Every apprentice should have one and should read it several times, no matter what department he may be in. Each man in every plant that does anything portant at all should own one."

"The fundamentals covered in this book will be just as good 20 years from now as they are today, no matter how much progress the process might make."

"It's the finest effort ever presented to the photo-lithographic industry. The industry now and in the future is indebted to you, beyond every possibility to pay, for this splendid piece of work . . ."

". . . We also wish to commend you most highly on the excellent editing job done in connection with this book. Our men have been most enthusiastic in their praise of the material it contained, and of its usefulness from a practical standpoint."

"Your Manual of Photo-Lithography is by far the best thing I have ever seen on the subject and you have done a real service in compiling it."

"The Photo-Lithographer's Manual has aroused so much interest that we find that we shall need six more for the use of our employees."

These excerpts are from a few of the many voluntary letters of commendation received from executives of photo-lithographic companies. Lots of them are backing up their enthusiasm with re-orders for additional copies.

A New Book About Photo-Lithography

If you operate, or are thinking of installing, a photo-offset department, we can unreservedly recommend to you the new "Photo-Lithographer's Manual," edited by Walter Soderstrom, secretary of the National Association of Photo-Lithographers.

Delving into all phases of photo-lithographic operation, THE PHOTO-LITHOGRAPHER'S MANUAL attempts for the first time to bridge the gap between a vital, comparatively new reproduction technique and the virtual absence of an authoritative text designed to meet the needs of both newcomers to the field and those already in it.

This function the new 332-page manual performs with remarkable thoroughness. Drawing from the combined experience of seasoned experts, the manual runs the complete gamut from selling to production to management. In word and picture it succeeds in setting down, briefly enough to encourage reading and completely enough to establish authenticity, the why, what, when, where, and how of photo-lithography.

The selling section contains 19 separate headings covering 60 pages; production, 36 headings covering 175 pages; management, 11 headings covering 37 pages. In addition, there is a glossary of terms, itself an invaluable reference source. The three main sections are really separate volumes, intended to appeal to those concerned with the individual departments. Together they constitute a compendium as practical as it is thorough.

—THE POST
The Magazine for Letter Producers

What the Trade Publications think of

THE PHOTO-LITHOGRAPHER'S MANUAL

"Both newcomers and those well-seasoned in the photo-lithography field will welcome this manual which serves as a comprehensive textbook . . . " —**Printing**

"Recognizing the necessity of bringing together all the basic information concerning photo-lithography that might be of interest to a newcomer in the field as well as to be the authoritative handbook for photo-lithographers generally, Mr. Soderstrom has produced a comprehensive volume of 337 double columned pages.

The material is arranged under three headings—Selling, Production, and Management. In addition, there is a valuable glossary of terms and a well organized index. The book is suitably illustrated and contains a number of tables and charts that tell their story at a glance. The publication is a good example of the process of reproduction that it describes, in that it is a 100 per cent lithographical production.

For the person who wants an up-to-date authoritative compendium of Photo-Lithography this book ably meets the need." —**Typothetae Bulletin**

"Walter E. Soderstrom, under whose supervision the Manual was compiled, has been for years an aggressive leader in the fight for higher standards of craftsmanship and for opportunities for new blood in the industry. His Manual represents a distinguished addition to his other contributions to the industry's welfare. His co-workers on the Manual comprise a virtual, Who's Who in lithography." —**Lithographers' Journal**

Who Will Find the Manual a Profitable Investment

Executives
Salesmen — Estimators
Production Managers
Plate Makers — Pressmen
ALL engaged in photo-lithography in any capacity

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Craftsmen

Everyone engaged in any branch of the graphic arts

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Published monthly, this official publication of The National Association of Photo-Lithographers will keep you informed regarding new developments and new ideas in all branches of photo-lithography . . . selling, production, management. It is *not* a news magazine.

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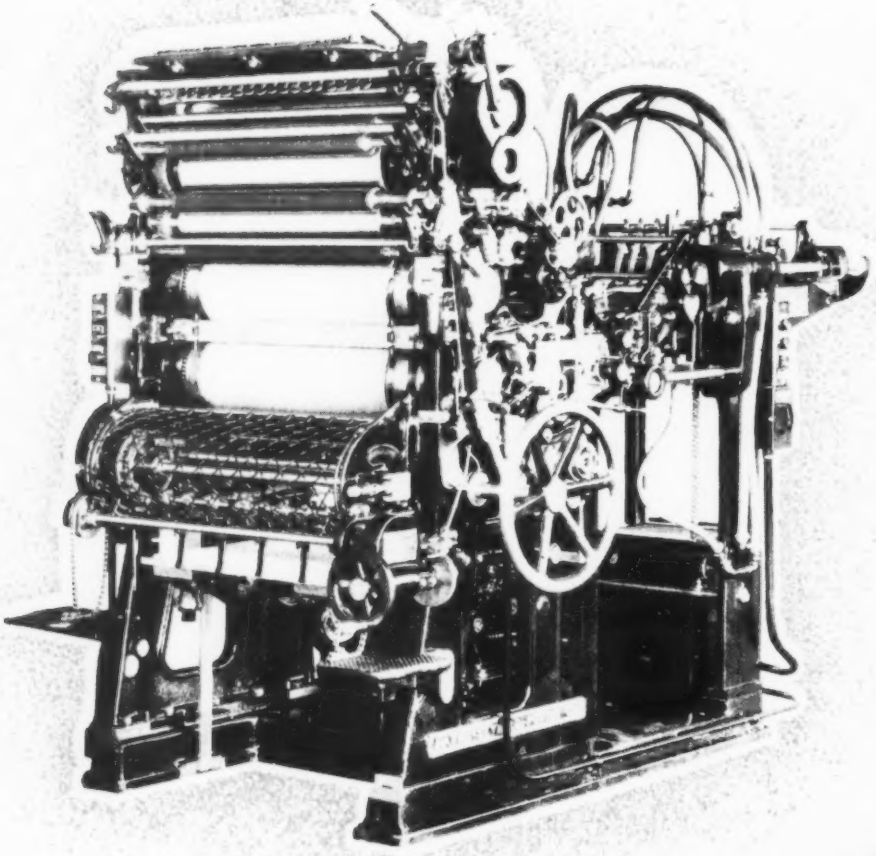

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